

ARCHITECTURAL RUBBLE

The Manufactured Landscape of Granger Bay

University of Cape Town

(2014)

M.Arch Prof

Design Dissertation

Research Report

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Abstract

Throughout the process of this dissertation I have explored an architecture that can truly represent the reality of the manufactured landscape and the complexities of such a morphology. It is with this interest that I found Granger Bay and its inherently manufactured qualities. It is a landscape that is simultaneously natural and artificial. An enquiry into the shift from the natural to the artificial was explored in terms of what it means for our reading of place as well as how architecture can encompass this new terrain. In the study of this site, like an archaeological investigation, the story of 'unbuilding to build' arose from the ground; discovering Granger Bay's true genius loci, which is grounded in rubble and the stories of the buildings that make up its rubble ground. It was with these ideas that I allowed the landscape to inform and generate a unique architectural language where boundaries are blurred between nature and man-made and enclosure and opening. The key informants to this design are the various geometries and forces that act on the site: Fort Wynyard's sight lines, the buried natural landscape, the ocean, rubble ground and the memory of the Alhambra Theatre. Through design I hope to have harnessed the sites latent energies and unleash the potential of Granger Bay's favourable location with key infrastructure and public space.

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Preface

This report documents my dissertation in two parts from theoretical underpinnings to architectural resolution. The Theory supporting this dissertation is investigated in Part 1 of this report- the morphology of the manufactured landscape and what it means to our reading of place. The second part of this report further investigates site- Granger Bay- and how it ignited a further interest in the making of and making with rubble. It was in the unfolding of this site and its surrounds that a programmatic and architectural response evolved, all the while maintaining notions of the manufactured, new understandings of architecture and genius loci, and the phenomena of 'unbuilding to build'.

Part 1: Morphology of the manufactured landscape

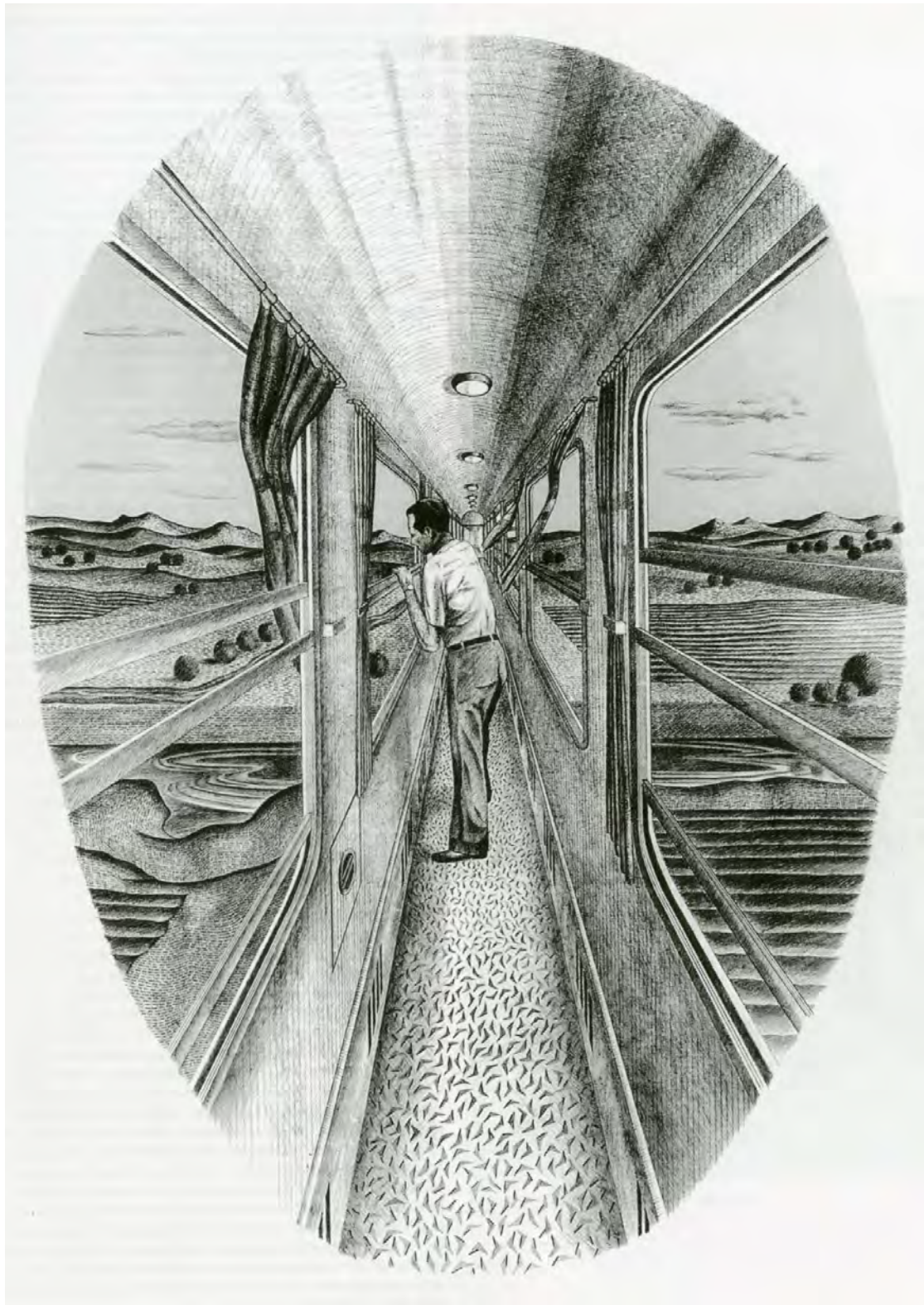


Figure 1: Max Peintner 'corridor train', 1970. (Brayer & Simonot, 2003)

Through the window of a train that stretches out as an endless corridor, a man looks out at the landscape. It's a strange landscape, insofar as its naturalness seems to have been fashioned entirely by man. It's a manufactured landscape. The undulations, fine furrows, the gentle geological folds express an unusual orderliness – that of a smooth domesticated geography, terra firma, yet, at the same time, infirm.

(Brayer & Simonot, 2003)

Introduction

The departure point for this dissertation is the discourse around manufactured landscapes in order to develop an understanding of this particular morphology of landscape. The interest was originally sparked by the circuit board with its man-made landscape aesthetic and the subsequent inverted plaster cast of the circuit board suggesting a ruined landscape (see figures 2-5).

Manufactured landscapes are a condition of our time; they are the landscapes that have been altered by the pursuit of human progress. An understanding of what constitutes this type of landscape will be explored. It is hoped that a theoretical standpoint will evolve following this investigation as to the consequences of such a landscape and whether we should be celebrating them or damning them.

The shift from the natural to the artificial is becoming more prevalent in today's age, resulting in a man-made nature. An enquiry into the construct of these artificial topographies will be outlined. Furthermore, what does this shift from the natural to the artificial mean for our reading of place as well as how architecture can encompass this new terrain? This will be closely interrogated through the lens of phenomenology.

The site of Granger Bay in Cape Town will be used as an exemplar to explore the condition of a manufactured landscape and ultimately be the site of intervention for an architectural design. Through this site it is hoped that the aforementioned interests and interrogations can be explored.

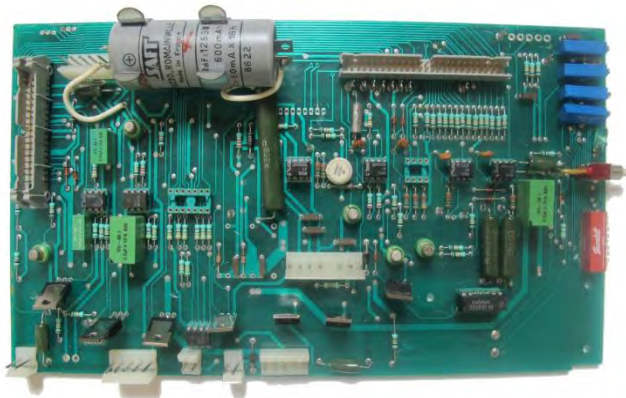


Figure 3: circuit board



Figure 5: cast of circuit

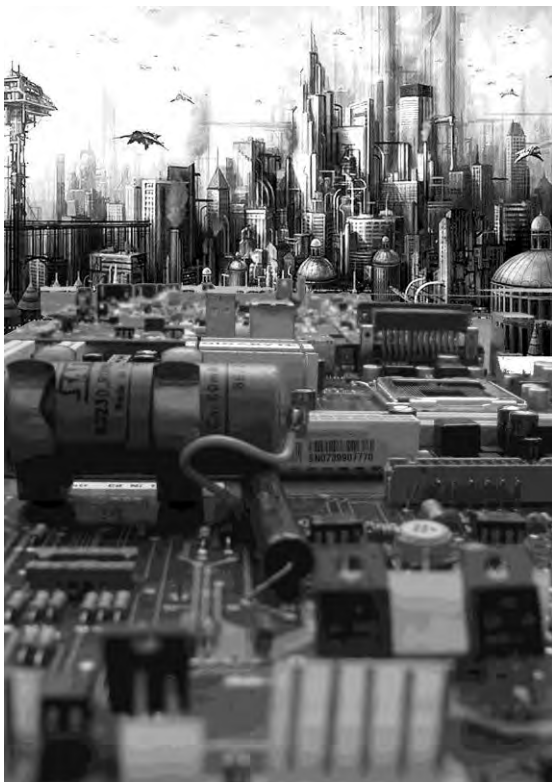


Figure 2: circuit city



Figure 4: plaster moonscape



Figure 6: August Sander, Untitled (Quarts Quarry and construction site near Cologne) 1932. (Pauli, 2003)

Manufactured Landscapes

Etymology

'Manufactured landscapes' is a term used by photographer Edward Burtinsky (Pauli, 2003) to describe the subject of his photographs. Burtinsky searches for "landscapes that have been altered by the pursuit of progress".

Following John Brinkerhoff Jackson, the word 'landscape' was originally used to describe "a composition of man-made spaces on the land. Landscape and humans ultimately are not separate".

Jørgen Dehs defines the word 'landscape' as not simply a geographical term but as a metaphor. "Every chaotic totality is assembled into a unity as soon as it is labelled a landscape" (Smout, 2007).

Landscape is a term which means more than the surface of the earth. It is not just the visual and functional arrangement of natural and human phenomena, nor is it merely the world we see; it is the construction and composition of that world (Cosgrove, 1984). Cosgrove (1984), a cultural geographer, builds a historical perspective of 'landscapes' as a fundamental player in social production. Cosgrove describes the shift from the Renaissance to the Industrial Revolution, where the landscape went from being a rural to an industrial geography. The industrial revolution had many implications for production, economic relations and the role of the land in social formation. According to Cosgrove (1984) "Land's natural function in society is to produce the means of human life, a function realised collectively in production". Yet Land now in the industrial age...

...was no longer the foundation of social production, but merely one factor in it. Control over land was now just one dimension of control over capital which coupled with the technology of steam and iron was the real key to power in productive social relations (Cosgrove, 1984)

Understanding Cosgrove's idea that there is a collective social construction of landscape that has shifted with human evolution, we can now see how we have arrived at the 'manufactured' landscape. The word manufactured suggests the making of, or fabricating of something on a large scale using machinery. This is a clear condition of our cultural and social circumstances in all aspects of life, and the landscape is no exception.

Thus the term 'manufactured landscape' refers to the man-altered landscapes in our world where man has changed the nature of the land through exploitation in satisfying the needs of our evolving society – thus creating new topographies (Pauli, 2003).

Man-made sublime

According to Cosgrove "holy fear, gloom, infinity, exhalation, vastness and grandeur" (Cosgrove, 1984) are the adjectives that describe the sublime. John Bentley Mays (Donegan, 1994), described Burtinsky's work as 'neo-Sublime'. Nineteenth century ideas of the sublime described a romantic aesthetic of nature and god's might, but in Burtinsky's work and in landscapes of our age the aesthetic is turned on its head, where the landscapes do not necessarily represent the power of nature and God but the destructive powers of man. Burtinsky highlights this edgy relationship between man and nature.

The reshaping of terrain by modern industrial activities such as refineries, quarries and waste sites, often photographed at indeterminate scales, illustrates the vast extent of man's intervention in the landscape. The result is an appreciation of the built environment as 'man-made sublime' (Smout, 2007).

In the neo-sublime there is simultaneously horror and attraction in these landscapes. This dual antithetical emotion is understood by Edmund Burke's enquiry that terror and astonishment are the ruling principles of the sublime. Where we are in awe of the sublime in nature, it is a state where all emotions are suspended, with some degree of horror (Landow, 1988). This man-made sublime speaks of the indomitable will of man which we admire and fear at the same time.



Figure 7: Rock of Ages, Active Granite Section, E.L. Smith Quarry, Barre, Vermont. Edward Burtinsky, 2002. (Pauli, 2003)



Figure 8: Rock of Ages, Abandoned Granite Section, E.L. Smith Quarry, Barre, Vermont, Edward Burtinsky, 2002. (Pauli, 2003)

Augmented landscapes & conditions

Man has always taken from nature. What has now changed is the scale and degree to which this happens, that with which current society is grappling (Pauli, 2003). It is a symptom of current development where the scale of industrialisation is so large that it is capable of generating a whole new environment; new landscapes in themselves.

‘Augmented landscapes’ characterised by Marc Smout (2007), refers to conditions where man has enlarged the landscape through architecture and infrastructure, manipulating and blurring perceptions of what is natural and what is artificial. Augmented landscapes are hybrid environments of a “utilitarian topography, a sustained artifice” (Smout, 2007). It is these augmented landscapes that have been manufactured by man’s industry.

Man’s ability to change and augment our environment is described by Smout (2007): “man continues to mark the land, relentlessly shaping the surface from wilderness to cultivation” (Smout, 2007). Our need to inhabit the earth and the way in which we inhabit the earth introduces a new order to the land.

The natural landscape has taken on an artificial patination. Alien materials interrupt the processes of growth and decay. New and evolving features created by man are, to an extent, absorbed by the fluid and yielding nature of our surroundings. (Smout, 2007)

What is created is a hybrid environment, an environment that is shaped by a man made geomorphology; a neo-nature.



Figure 10: Oil Fields, Taft, California, Edward Burtinsky, 2000. (Pauli, 2003)

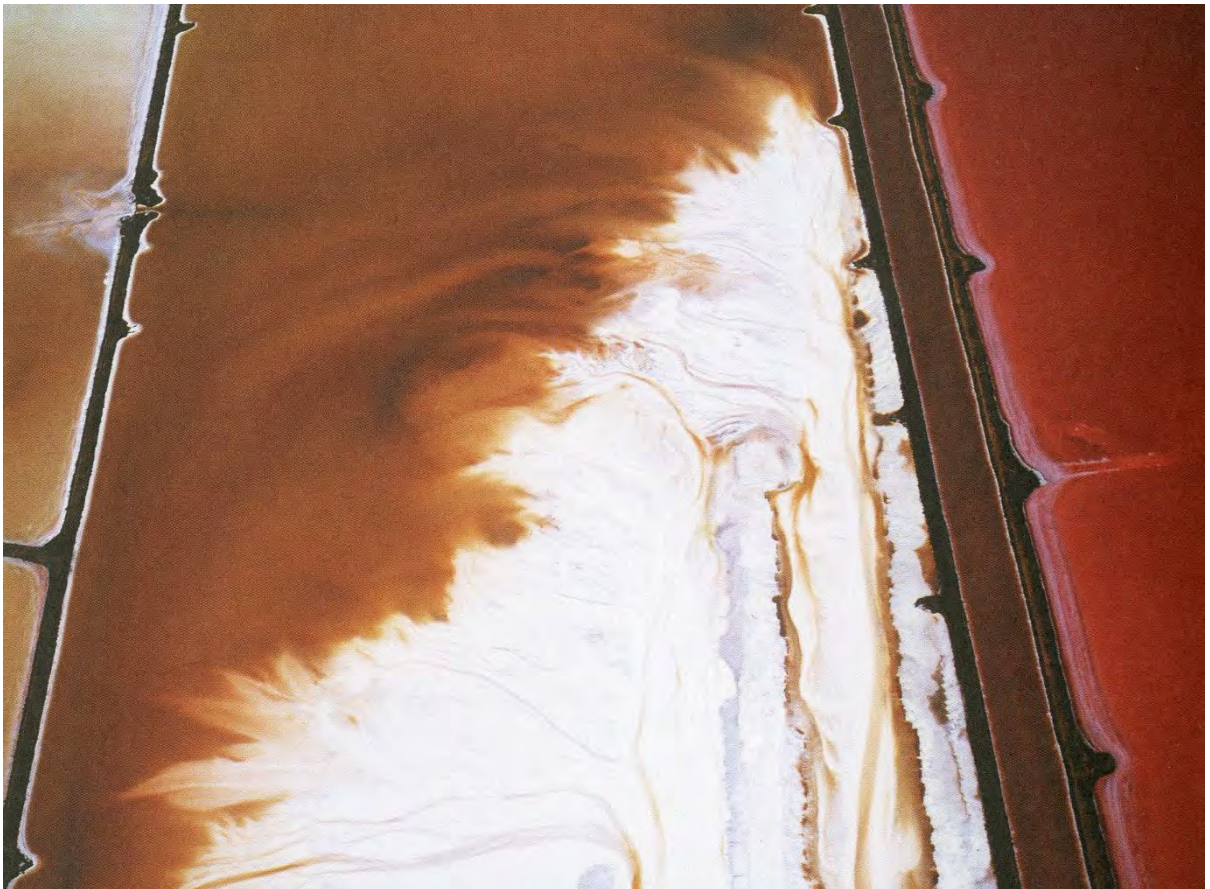


Figure 9: Owens Lake California - drained to water lawns of suburban Los Angeles - now one of the most toxic sites in North America. The Lake Project, David Maisel, n.d (Manauagh, 2009)



Figure 12: Granger Bay



Figure 11: Granger Bay

The artificial terrain of Granger Bay

Claiming Granger Bay

The phenomenon of the manufactured landscape exists in Cape Town, and is a significant feature of our city. Cape Town's reclamation of the foreshore to create the Duncan dock harbour that we have today was one of the greatest engineering feats of its time. A well thought out and calculated project using sand as fill providing us with perfect new ground. Land reclamation has allowed us to stretch the habitable surface of our earth beyond its natural shores, in essence, the ultimate manufactured landscape (Manaugh, 2009). However just to the west of Cape Town's Foreshore lies the area of Granger Bay where land was reclaimed from the sea in the 1970's by a different method to that used for the Duncan Dock. The area was created privately by a few individuals who reclaimed the land using demolished buildings of Cape Town such as the old Alhambra theatre in order to build the breakwater. "They begged borrowed and stole and succeeded to build a small harbour" (The Oceana Power Boat Club, n.d.), giving us the manufactured landscape and small boat slipway that is there today.



Figure 14: Granger Bay ground conditions



Figure 13: Granger Bay ground conditions

Ground Conditions

Granger Bay is described as an open featureless piece of land. “It is a characterised by a total lack of vegetation and any natural features, physical or animate” (VISKOR, 1982). This description was written over thirty years ago yet it still remains true to the present Granger Bay condition. The original kelp- shore edge has been covered with fill material, mostly building rubble. The hardscape of this site makes it an unforgiving and hostile environment.

The nature of this land is artificial yet it has a strange history of its own. The old buildings of Cape Town that make up this land now lie in ruins unbeknownst to the users of the site; a strange and eerie building graveyard. Historical architectural fabric torn down and dumped in order to manufacture land; shivering with every crashing wave of the ocean. The sandy shore that once was has been refashioned, transfigured and reshaped. This landscape has been augmented in order to satisfy the desires and needs of urbanisation.

The tension between man and nature is palpably prevalent in this site. Where the alien rubble and fill interrupt the natural environment; man has taken from the sea and a tension between the two has been set up. The sea fights back through the high water table and the waves crashing against the breakwater. A hybrid environment has been created.

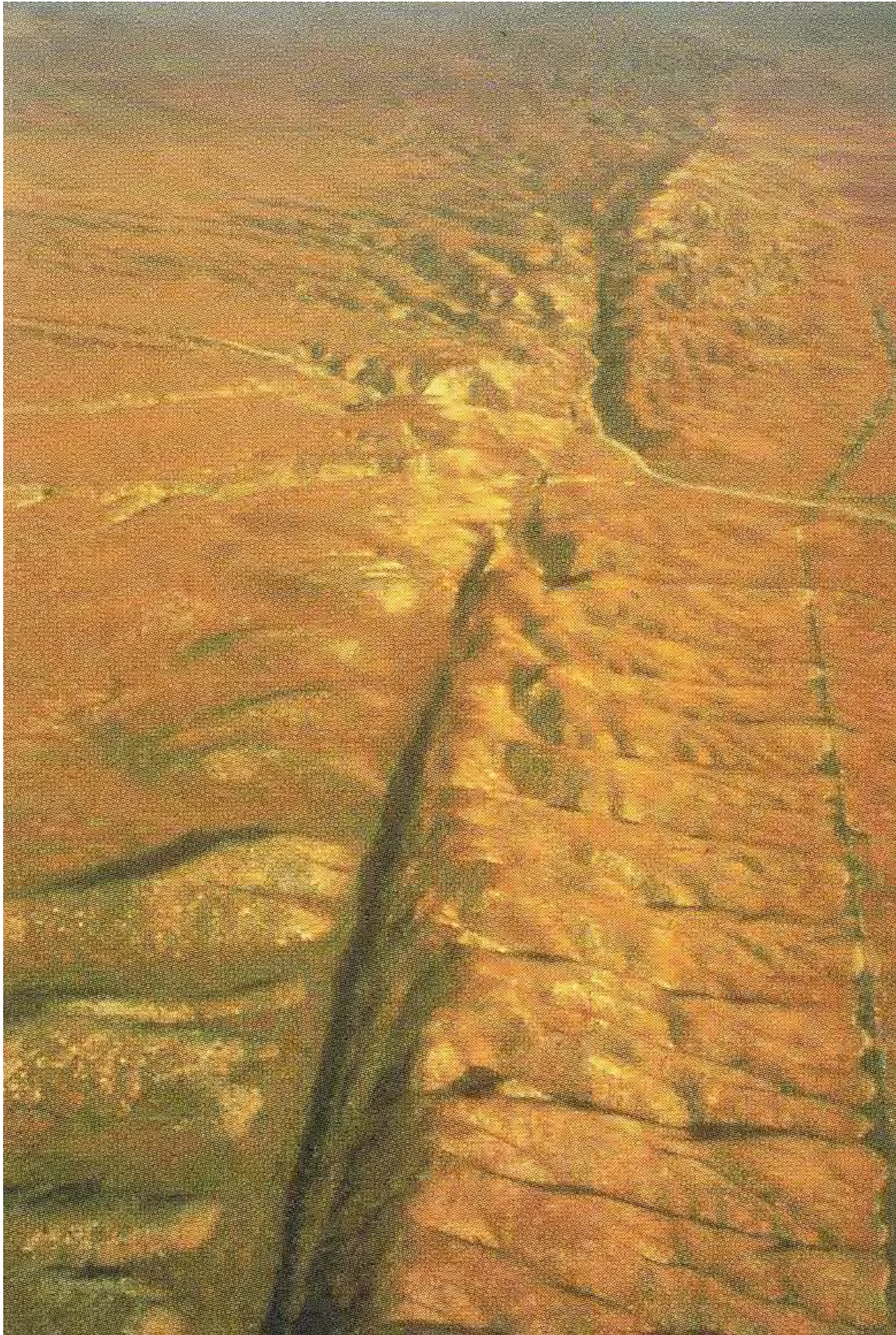


Figure 15: Aerial view of the San Andreas Fault depicting the earth's natural geology and geomorphology. NOAA/NGDC Natural Hazards photo Archive, n.d. (Manaugh, 2009)

The natural to the artificial

Geomorphology and neo-geomorphology

Nature is constantly changing and evolving. Stan Allen (2011) describes landscapes as being “shaped by force and resistance working overtime”. This change is of geologic time, where the natural processes of the earth are slow. Resistance and change are at play in the landscape all the time but at a rate that we cannot see. This rate of change is far slower than the rate at which the human race is ever developing and furthering themselves in the world. Individuals and their environments are changing and evolving on a parallel course, “the hardness of the rock and the fluid adaptability of living things” (Allen, 2011) are constantly at play, yet at different speeds. Just as the landscape has a restless quality so too do humans exhibit this quality.

Geomorphology is the scientific study of landforms and the processes that shape them. The surface of the Earth is adapted by a combination of natural processes that sculpt landscapes. In the case of Granger Bay, its original topography used to be a beach. In coastal geomorphology the shoreline where land meets sea, is continually changing due to wave action eroding the land. Waves of different strengths that constantly hit against the shoreline are the primary shapers of a coastline. These are the forces that shaped Granger Bay and would have continued to shape Granger Bay had man not intervened. Man has begun to manipulate the surface of the earth, a true reflection of the change and evolution of man; a neo-geomorphology.

Where geomorphology in geological time takes thousands of years for the earth’s landscapes to shift and change, Granger Bay was created in less than a mere 10 years. The area was not created by the earth’s natural processes of weathering and time but created and imposed by man. This constructed landscape is an artificial terrain of building debris. Even the fill that has been tipped onto this site is man-made consisting of concrete, bricks and other building

components. These hard substances do not erode as does rock resulting in sand; they resist the crashing waves and are far more indomitable than the natural environment. The shore line is now an unchanging hardened edge that fights against the sea. The weather has struggled to soften this landscape. The rubble terrain has not had geological time to soften it and fill it in. Much like the top of a river course where the bedload is larger, chunkier and more angular before it is eroded moving downstream becoming smoother and smaller into fine sediments and mud (River Processes, n.d.). Not only is the manufactured landscape a representation of human control over the land, but a control “over the very processes of nature” (Cosgrove, 1984).

Reading of place: the shift in the concept of genius loci

The old & the new

As the artificial becomes more prevalent and a part of our natural world; how does this affect our sense of place? It is one thing to understand the quantitative consequences of manufactured landscapes, but what are the qualitative consequences?

The most common and revered reading of the qualitative aspects of our environment is the theory of Phenomenology, where the concrete term for environment is place. According to Christian Norberg-Schulz (1996), place indicates “something more than abstract location”. Place has an atmosphere and character or a ‘genius-loci’ – which denotes the spirit of a place. Humans, their emotions and senses are placed at the centre of this philosophy. It is this genius loci that we experience in a place, a character which is determined by “how things are” (Norberg-Schulz, 1996).

Norberg-Schulz (1996) describes the environment as the landscape making up the natural. It is in this natural landscape that the secondary occurs – the man-made. The man-made parts are the settlements: from houses, to farms, to villages and roads. He postulates that if the settlements are organically related to the environment they serve as “foci where the environment is condensed and ‘explained’” (Norberg-Schulz, 1996). It is Heidegger’s theory (Norberg-Schulz, 1996) that the buildings and villages “bring the earth as an inhabited landscape close to man”. Thus the main property of man-made places is “concentration and enclosure”. Buildings relate to their environment by resting on the ground and rising towards the sky.

Previously the man-made used to merely occupy site, where the man-made was a concentrated enclosure. Now, the man-made not only occupies site but the man-made is the site (Allen & McQuade, 2011). Conventional understandings of object and field, architecture and landscape have now shifted. The landscape itself has now become architecture. Burtinsky (2003) describes his fascination with

the quarry, “it’s an organic architecture created by our pursuit of raw materials...” The man-made is now in many cases open expanse, where an ambiguity between the natural and the artificial occurs. It is not as clear cut as enclosure and opening; the boundaries have been blurred.

Once we have shifted our thinking to expand and encompass these new territories we can establish the character of these places through the phenomenological approach of how things are made and exist as participants in their environment.

Geography is architecture, architecture is now geography
According to Manuel Gausa (2003) “the old ‘genius loci’” can no longer represent the static rigidity of the traditional built environment. It has now become a more diffuse abstraction. The environment has become a spectral field of forces. The traditional ideas of landscape and settlement have now been replaced, where the “traditional established, one way system of the old morphological or typological definitions” have now been exchanged with less “linear and literal, and more multifaceted and ambivalent set of operations that truly reflect the complexity of the modern society. When we analyse place there are no more “protective wrappings or reliable points of reference” (Brayer & Simonot, 2003). Gausa (2003) describes our environment as a place of many ‘musics’ that are not always harmonious. The concept of ‘place’ must now be given new impetus.

The philosophy of a ‘genius loci’ and that a place has a certain character that man experiences, is still valid. What has shifted is the construct of these places and that the phenomena that make up these places are no longer so clear cut and easily defined. A manufactured landscape can still be a place with a character.

Although this character might differ from the traditional concept of character where the man-made serves as foci to the natural, the man-made is now not necessarily in harmony with the natural. The character is often the horror and beauty of man's creations of inadvertently sublime landscapes (Pauli, 2003).





Figure 16: Atmosphere, Walter Niedermayr, Mer De Glace, 2008. (McQuade & Allen, 2011)

Niedermayr is an artist that situates human beings in nature in order to reveal the vulnerability of the human presence in the vast landscape but also the man made quality of these landscapes.

Roughness: the man-made sublime

The 'genius loci' of Granger Bay

The land that is Granger Bay is characterised by a certain roughness. An earth made up of coarse artificial angular and chunky ground full of dark holes. It is this roughness that characterises sublimity and is apparent in its abrupt alterations (Leatherbarrow, 2009). The manufactured land of Granger Bay conceals nature's genuine order. The artificial ground is a result of "human conceit and caprice, not nature itself" (Leatherbarrow, 2009).

Plato writes in *Lysis* that "beauty is a soft, smooth, slippery thing...which easily slips into and permeates our souls."

Sublimity contrasts with this; "take any beautiful object asserted Burke, "and give it a broken and rugged surface, and however well formed it may be in other respects, it pleases no longer... any ruggedness, and sudden projection, any sharp angle, is in the highest degree contrary to that idea". That contrariness could be viewed as sublime.

(Leatherbarrow, 2009)

Leatherbarrow furthermore describes roughness as something that is unfinished and not fully formed. It has an inherent possibility for change and development "as if it were a sketch" (Leatherbarrow, 2009) that is still to be actualised. This unfinished quality characterises Granger Bay in that there seems to have been no care in smoothing out the land and giving it a finished well planned form. Rubble was dumped onto a tip site to reclaim this land with little thought and effort put into the finished product.

The rough texture of the artificial ground underfoot, the sound of the ocean, the site's barren hostility are the concrete phenomena that make up Granger Bay's *genius loci*. Manufactured and artificial yet fascinating and intriguing at the same time, this landscape holds a unique and strange splendour that is revealed when you discount

the violence of this landscape and the loss of a sandy shore; its true genius loci revealed.

The manufactured landscape typology is one that we cannot ignore and wish away. It is a result of how man chooses to inhabit this earth. Burtinsky states “we are all implicated in the exploitation of the natural environment by industry. If we fly planes, drive cars, or heat our homes, we are all consumers of natural resources” (Pauli, 2003).

If the morphology of the manufactured landscape expresses the landscapes that have been altered by the pursuit of human progress then architecture working in Granger Bay needs to encompass and embody these new territories of a reconstructed nature both natural and artificial at the same time. The site can only reach its full potential when its genius loci is understood and enhanced through an architecture that shifts away from traditional notions of the built environment. An architecture that truly represents the ambiguities and contradictions of this landscape

Part 2: materiality and manifestation

Pretext

Part 2 of this report documents the study of Granger Bay and the grounded theory of 'unbuilding to build'. It is with the study of this site that a programmatic and design response emerged.

Unearthing program and materiality:

Rubble ground and the discovery of the Alhambra

Granger Bay as we know it today was reclaimed with building rubble consisting of debris of many demolished buildings in Cape Town at the time of its construction, such as the Alhambra theatre. The individuals who privately developed the land used wheeling and dealing tactics to get their hands on any unwanted debris in order to create the new land. It was this discovery of Cape Town's historical fabric lying nameless and forgotten in the ground that led to an interest into the phenomenon of rubble and in turn led to an investigation into the demolition industry and building with rubble. The discovery furthermore inspired a programmatic response exploring how the spirit of lost Alhambra could be resurrected.

Discourse on rubble: Unbuilding to build

A culture of destruction in our built environment has led to a practice of destroying and rebuilding, where the speed of the life and death cycle of the built environment has increased rapidly. The consequence of this culture has generated vast amounts of debris and waste from unwanted unloved buildings. But what does one do with all this rubble?

Rubble is a by-product of the demolition industry but in some cases it can also be used as building material. Urbanisation and human expansion are greedy for more due to a condition of rapid change and the desire to expand. In this sense, recycling of this by-product is crucial. It is the responsibility of built environment professionals to manage the waste that it makes.

This research attempts to create an understanding of; the wrecking trade and what we value and disdain in modern society, rubble as a by-product of the demolition industry and as a building material. Ultimately, how do we manage the life and death cycle of the built environment?

The wrecking trade

A culture of destruction

Feverish construction cycles kicked off in the 20th century, making way for modernisation and urban renewal. This ultimately led to the demolition industry gaining prominence. Jeff Byles (2005) describes in his writings the under-acknowledged, social enthusiasm for “smashing things” and ultimately the multi-billion-dollar business, and extreme-spectator sport that demolition has become. Byles refers to demolition as the “bastard-child” of the construction industry driven by the greed of our society. He explains how through recent history, modern civilization has destroyed much of the architectural fabric that was inherited from previous generations, “creating a widening chasm between us and our past, but, worse, on every continent we have adopted a culture of destruction that presages further loss”. It is with much of our world’s large building booms that demolition comes hand in hand, the predator behind the scenes. Through demolition we have unbuilt much of our world in order to build newer and better.



Figure 17: World War 2 devastation in Warsaw (Swierczynski, n.d.)



Figure 18: 9/11 2001 debris - the loss of the twin towers (Morgan, 2011)

Unbuilding our world

There are many instances where we have lost historical building fabric through war and natural disaster but possibly the most perverse cause has been the developer. Byles(2005) describes an epidemic of demolition that took off in America where historic neighbourhoods were torn down to make way for “gentry friendly, starter castles”; the culture of the supersized American house. The ruthless property developer and capitalist economy view architecture and buildings as mere commodities “that can be bought and sold (and demolished) like stocks and shares” (Glancey, 2009).

Buildings are big things and you might be forgiven for thinking that it must be impossible to lose them...throughout history and around the world; humankind has made something of a habit of losing buildings as if these were nothing more substantial than a copper coin, a hairpin or a set of car keys (Glancey, 2009).

Robert Moses, an example in point has been described as the master builder and “commissioner plenipotentiary and rubblemaker general” (Byles, 2005) , responsible for the New York we know today.

Moses “demolished a solid mile of six- seven story apartment houses” (Byles, 2005) evicting 250 000 people and destroying their homes in order to build his monumental cross-Bronx expressway. The ruthless man stated “When you operate in an overbuilt metropolis, you have to hack your way with a meat axe. I’m just going to keep right on building. You do the best you can to stop it” (Berman, 1982).

The wreckage of architectural history has, quite literally, paved the way for new land and man’s desire to satisfy the needs and desires of urbanization.

Lower Manhattan was originally much narrower than it is today (Farberov, 2013). The most dramatic transformation to the expansion of Manhattan was in the 20th century with the construction of the Franklin D. Roosevelt East River Drive also known as the FDR drive. Manhattan is now roughly 95 000 square metres larger today through land reclamation.

Yet unbeknownst to many people, parts of New York are built on British war ruins. It was around the time of the construction of the FDR drive that Nazi bombers destroyed more than 4.5 million homes in London leaving “London and Coventry knee deep in rubble” (Byles, 2005). It was with this that “a phalanx of 13,500 troops from the royal engineers got busy ripping down war-ravaged structures” (Byles, 2005). It turns out that this rubble became a highly sought after commodity. Historian Kenneth T. Jackson describes how “convoys of ships returning from Britain carried the broken masonry in their holds as ballast” (Byles, 2005) in order to create much of the landfill that Manhattan’s FDR drive is built on. Beneath the FDR drive lies the rubble from the Luftwaffe’s blitz on London and Bristol from the Second World War. Quite literally the history has been buried.

Geoff Manaugh (2009) depicts a scene where one looks over the east side of Manhattan, where your gaze is passing over “fragments of British cathedrals and London slums, the shattered door frames and lintels, eaves, vaults, and bedroom floors of whole towns...embedded now in asphalt. Down in the foundations of cities, are other cities”.

Granger Bay echoes this phenomenon where old buildings of Cape Town lie anonymous beneath the feet of many users of the site. Pieces of the fine Alhambra theatre and its Moorish architectural elements make up this ground, *terra incognita*.

Tearing down to build up

Although as much as one can loath Robert Moses and the likes, where the desire to build bigger and better to make a buck leaves behind trauma and devastation, it is in Marx's Manifesto that he illuminates that:

the polarities that will shape and animate the culture of modernism in the century to come: the theme insatiable desires and drives, permanent revolution, infinite development, perpetual creation and renewal in every sphere of life; and its antithesis, the theme of nihilism, insatiable destruction, the shattering and swallowing up of life, the heart of darkness, the horror (Berman, 1982).

We see clearly now the troubling ambiguities and contradictions of modernity. To oppose Moses' bridges, tunnels, expressways and developments is "to oppose history, progress, modernity itself" (Berman, 1982). The price of ongoing and expanding modernity is the destruction of "tradition and pre-modern institutions and environments" (Berman, 1982). It is with this that the sensibility of New York has been one of progress, renewal and reform and everything we associate with modern culture.

With renewal there is consequence, once we have made way for our shiny new building, how do we manage the destruction that has been left behind?

Life after destruction

Through recent history the push to consider the environment and create minimal waste has become ever present. Yet minimal waste and construction are not two concepts that go together, the construction industry is leaving a trail of destruction and our landfills are reaching their peak.

There is a violence associated with demolition where a site is

cleared of its building by the most convenient means. This ultimately means that materials cannot be used again in their present form. When buildings reach the end of their useful life, they are typically demolished by means of implosion or wrecking ball and hauled to landfills, this style of unbuilding offers the quickest and most inexpensive means of clearing a site for new construction generating a mass of debris (Clark, 2013). With a change in attitude we can realise “something only becomes waste when it is considered such” (Yudina, 2014).

Rubble

The nature of rubble

Rubble is essentially a by-product of the construction and demolition industry. Its nature is broken stone, brick and concrete, of irregular size, shape and texture.

Rubble as building material

Every year Cape town disposes roughly 3 million tons of what is classified as builder's rubble on its landfill sites. If rubble is roughly 2 tons per metre squared, that results in 1.5 million metres cubed per year. Now if that number is hard to comprehend, it is the equivalent of 15000 blue whales!

With the advent of the energy crisis, the increasing shortage of dumping grounds for rubble and diminishing natural resources (Frick, 1987), there are many innovative ways in which we can reuse building rubble. One of the most obvious re-uses of rubble is that of a fill material in landscaping where little needs to be done to the rubble in order to use it other than making sure the waste is clear of contaminates.

What is becoming an increasingly common re-use of rubble and concrete rubble specifically, is the use of this rubble as a substitute for aggregate in making new concrete. The aggregate is produced by crushing demolished concrete to produce either a fine or coarse aggregate. The shape and texture of this aggregate is determined by the crushing process (Frick, 1987). The recycled aggregate is more porous in nature and therefore absorbs more water from the concrete mix. The strength and nature of the concrete will depend largely on the aggregate. The recycled aggregates strength will be considerably less than that of natural stone aggregates (Frick, 1987).

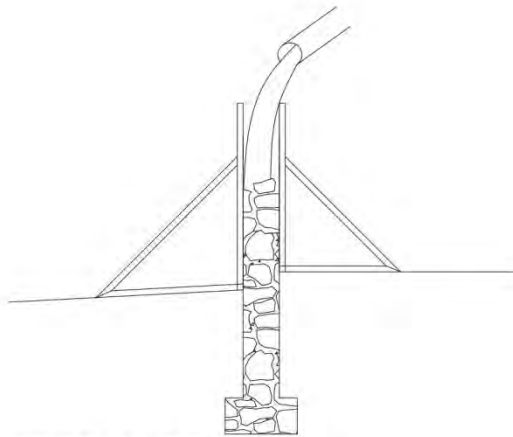
Another common use for stone rubble is the use of it in wall construction and in filling gabions. These methods can be used and the stone rubble can be interchanged with building rubble.

The diagrams overleaf show the exploration of rubble construction keeping in mind waterproofing, ease of construction and final finish.



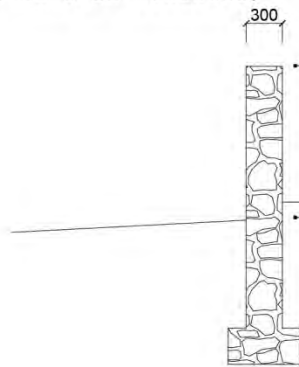
Figure 19: Rubble Construction

SECTION



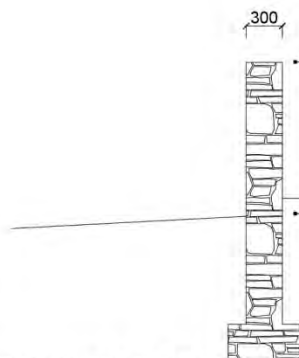
CONSTRUCTION TYPE 5 & 6

rubble coursed / uncoursed in shuttering then concrete mixture added (this method is less labour intensive and require less skill. This allows fine grain rubble to also be utilised)



CONSTRUCTION TYPE 5

uncoursed rubble cast in concrete



CONSTRUCTION TYPE 6

coursed rubble stacked and then cast in concrete



RUBBLE THROWN INTO SHUTTERING

ELEVATION

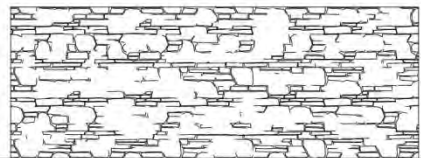
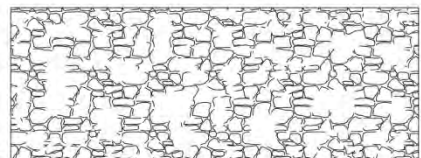


Figure 20: Rubble Construction

Rubble with meaning

An example of the re-use of rubble in buildings can be seen in the Ningbo Museum by architect Wang Shu where millions of salvaged bricks received a “new lease of life” (Yudina, 2014). The reclaimed construction materials were carefully incorporated in the design. Although the building was modelled digitally, it was only on-site that the design took its true shape by builders improvising with the materials they had at hand. It was through this mindfulness that true value and importance was given to these materials. “With 95 % of local indigenous housing scheduled for demolition, Wang Shu literally translates Ningbo’s past to the walls of its History Museum” (Yudina, 2014). Thus with the re-use of rubble in construction we can give value and meaning to the old when making the new.

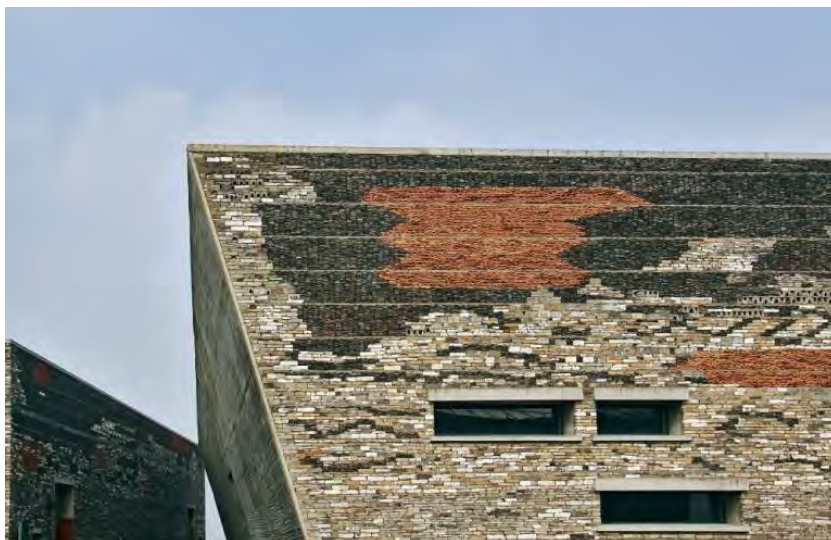


Figure 21: The Ningbo Museum, China: using 40 kinds of salvaged bricks and tiles from the buildings demolished in the area (Pascual, 2013)

It is building rubble that characterises Granger Bay’s rough nature. This was the inspiration to continue building with rubble on this site in the way of land and building; continuing the cycle of unbuilding to build.

Contextualising site

Granger Bay site conditions

The Granger Bay site at present, despite its favourable location, is underutilised, rough and run down. The site's proximity to the CBD and potential accessibility to the metropolitan, established residential areas, the popular V&A waterfront and the Victoria Basin make it a desirable location for development. In such a developed and popular area the un-manicured, undeveloped site is a unique opportunity for a sea edge development. Land usage in the area at present is diverse, ranging in intensity from recreational, industrial to institutional. Most of the sea/land interfaces on the surrounding shores revolve around commercial harbour activities, fishing and boating. The only human interaction with the ocean happens when walking around the V&A waterfront harbour or boarding a boat. There is no physical contact with the ocean in this area. Most users of the area make use of internalised activities such as shopping, going to see a concert at the stadium or using the medical facilities at Somerset Hospital. Most of these amenities are public yet they do not provide a 'public space' that exploits the potential of this area.

A clear view: Fort Wynyard

Directly behind the site of Granger Bay lies the heritage site of Fort Wynyard.

Owing to its clear view of the entrance to Table Bay, Fort Wynyard was a particularly strategic coastal defence battery for Cape Town from the early 1800s onwards. The fort is located on one of the last remaining calcrete dunes on the mountainside corner of Beach Road and Granger Bay Boulevard (Kotze & volchenk, n.d.).

It is these qualities that made Fort Wynyard a prime strategic defence position determined by its clear lines of sight and fire, especially its position at the entrance of Table Bay (before reclamation) and its ability to cover the approach from Robben

Island and Blouberg Strand. Consequently its location and sightlines are intrinsic to the Forts historical significance.

This extension of land from the original shoreline has pushed this landmark back from the sea and furthermore most developments around this area ignore this pivotal land mark and many passersby are unaware of the site. It is imperative that any development on Granger Bay does not rise above the forts datum. Currently these sight lines project over Granger Bay unacknowledged almost like an invisible geometry.



Figure 22: Green point area with Granger bay highlighted pre land reclamation



Figure 23: Manufacturing Granger Bay (The Oceana Power Boat Club, n.d.)



Figure 24: Granger Bay mid reclamation (The Oceana Power Boat Club, n.d.)



Figure 25 : Mapping the Alhambra to granger bay

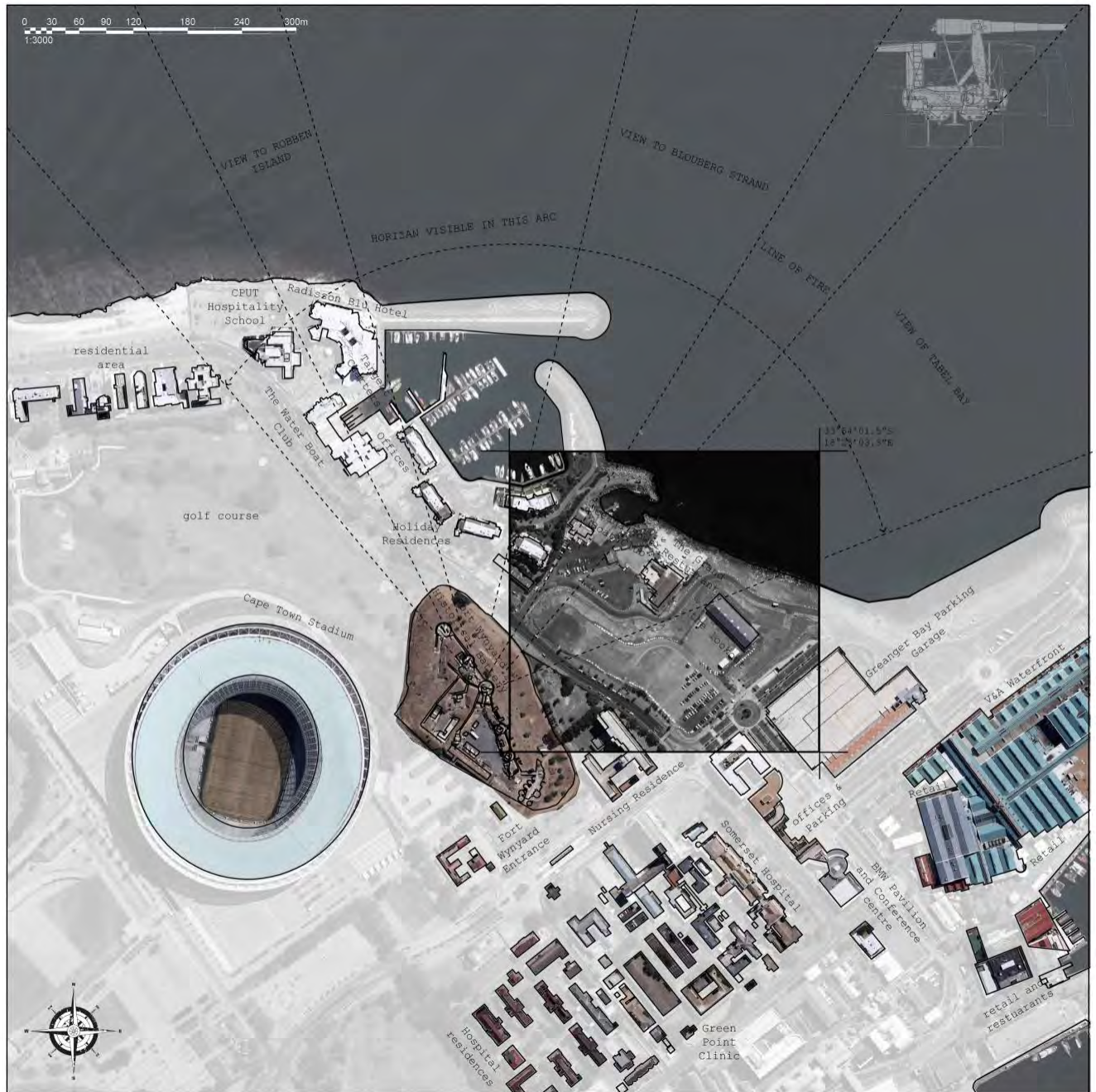


Figure 26: mapping illustrating how built fabric resembles objects floating in space with little fine urban grain + Fort Wynyard's lines of sight and fire

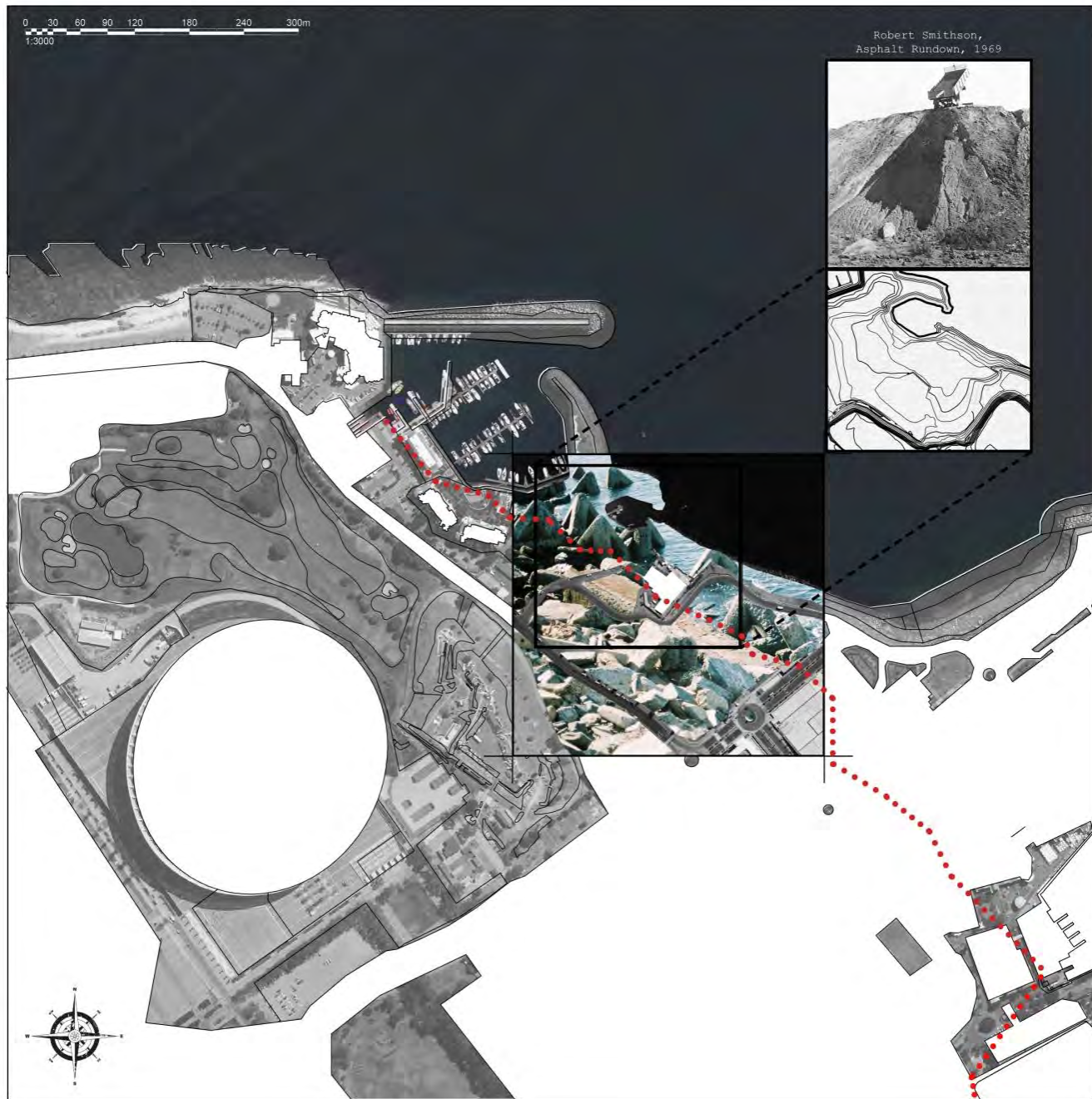


Figure 27: mapping illustrating open spaces and texture of the land where Granger Bay contrasts from the manicured golf course and green point park that lie in the vicinity.

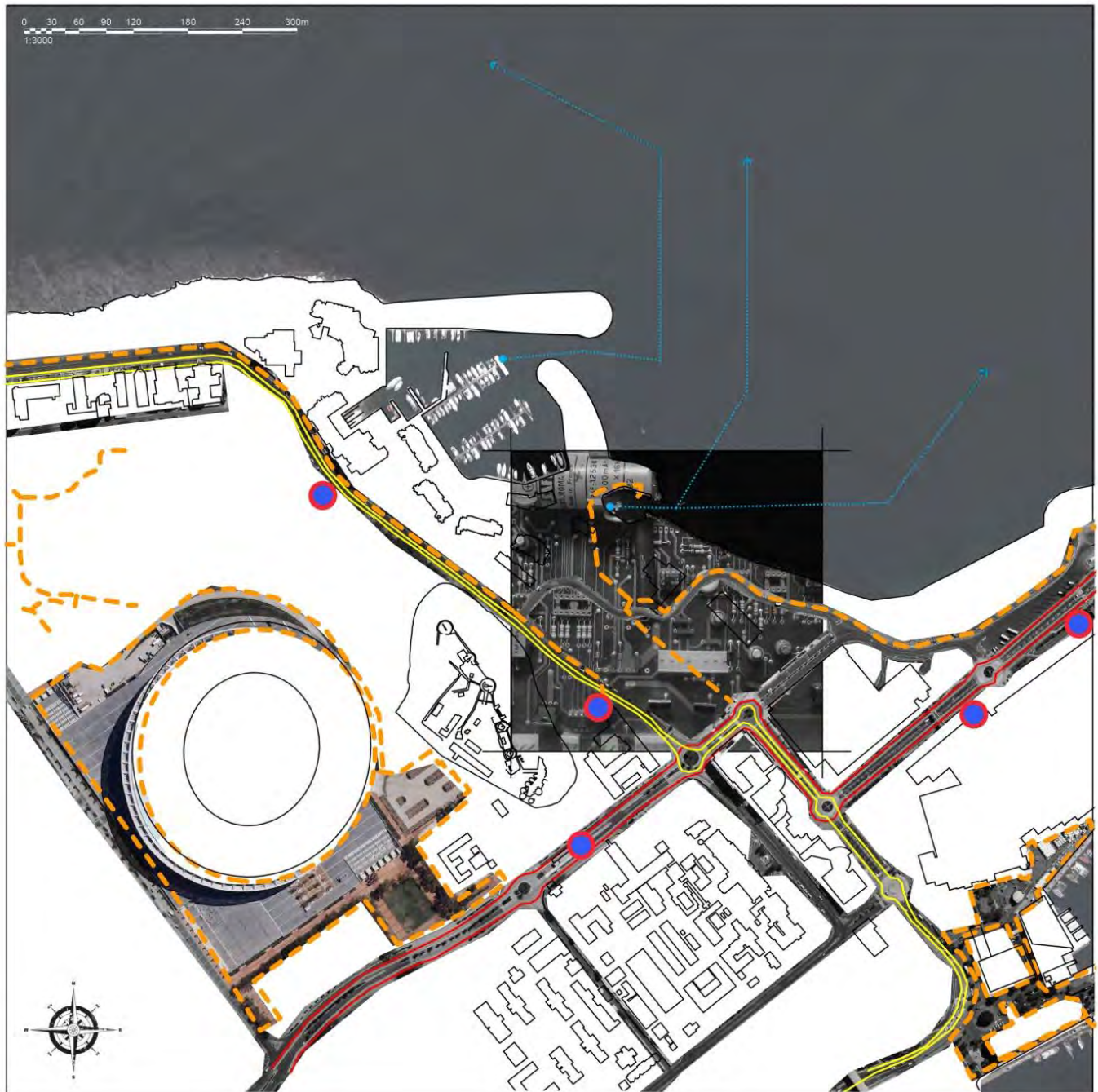


Figure 28: mapping illustrating vehicular, pedestrian, boating and IRT routes



Figure 29: Wave progression in Table Bay and its relation to Granger Bay. Granger Bay is the safest access for small craft into the bay as the small basin is sheltered from wave action.

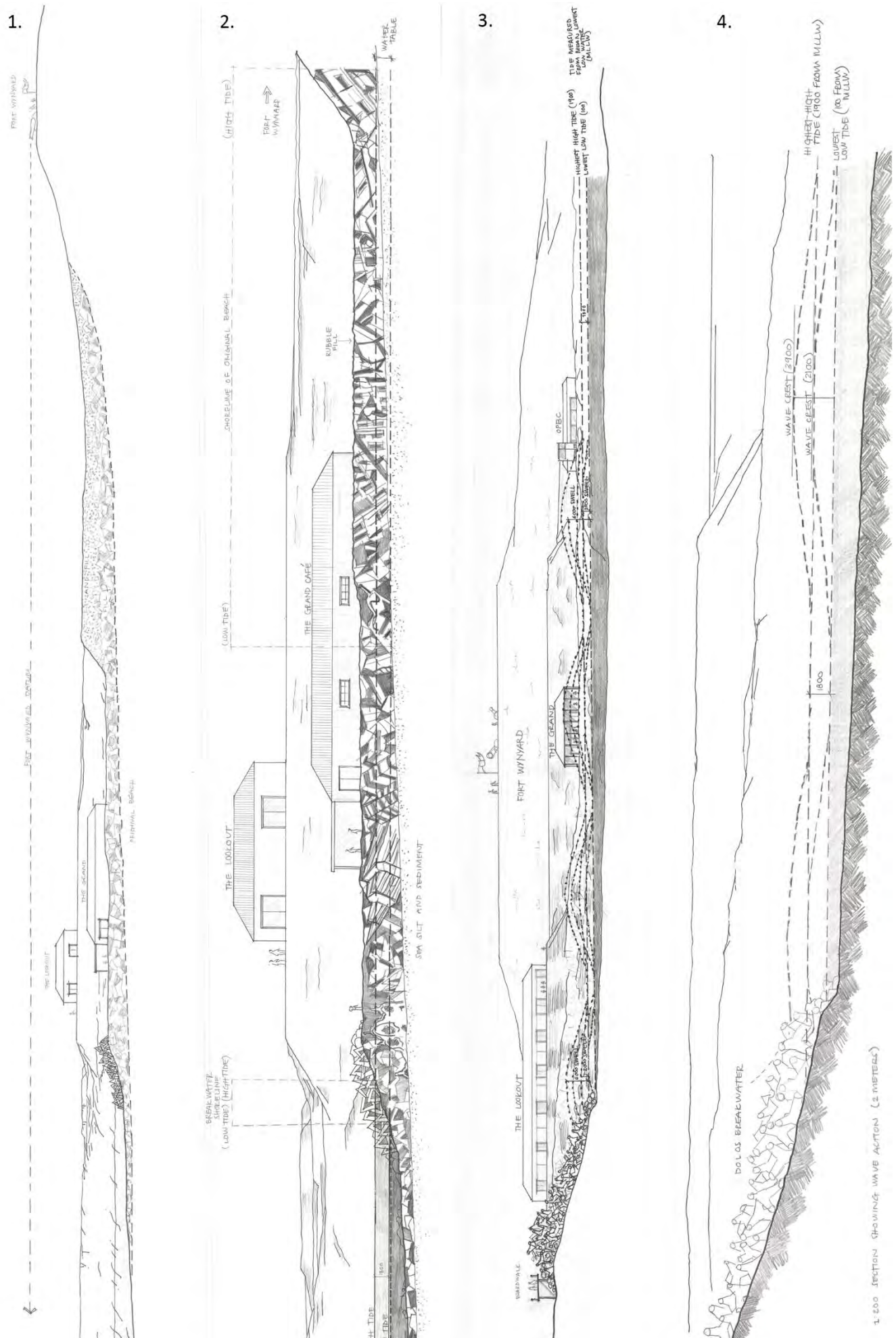


Figure 30: 1- Section through Fort Wynyard and Granger Bay. 2- Section through Granger Bay. 3 + 4- section parallel to Granger Bay

Programmatic response

The Alhambra



The discovery that Granger Bay was made up of rubble and that a seminal building in Cape Town's history lies buried and unrecognised further inspired programme. The idea immersed to refashion the land and represent the Alhambra theatre out of its own debris. Essentially to let it re-emerge from the ground.

The Alhambra was Cape Town's first Atmospheric Theatre. It had a starry night ceiling and lavish decorations; it even boasted a sliding roof for hot nights (Roe, 2006). A firm decision was taken to acknowledge this iconic historical theatre and translate this into a dual theatre on the site of Granger Bay consisting of an outdoor amphitheatre as well as an indoor theatre. The amphitheatre, firstly inspired by the old Alhambra's Starry ceiling and retractable roof, could host performances and outdoor movie screenings while the indoor theatre could be utilised in the winter season and more formal events.

Figure 31: The Alhambra, Cape Town sourced from:
<http://www.cinemasouvenirs.net/AlhambraCT.html>



Figure 33: imagining rubble ground

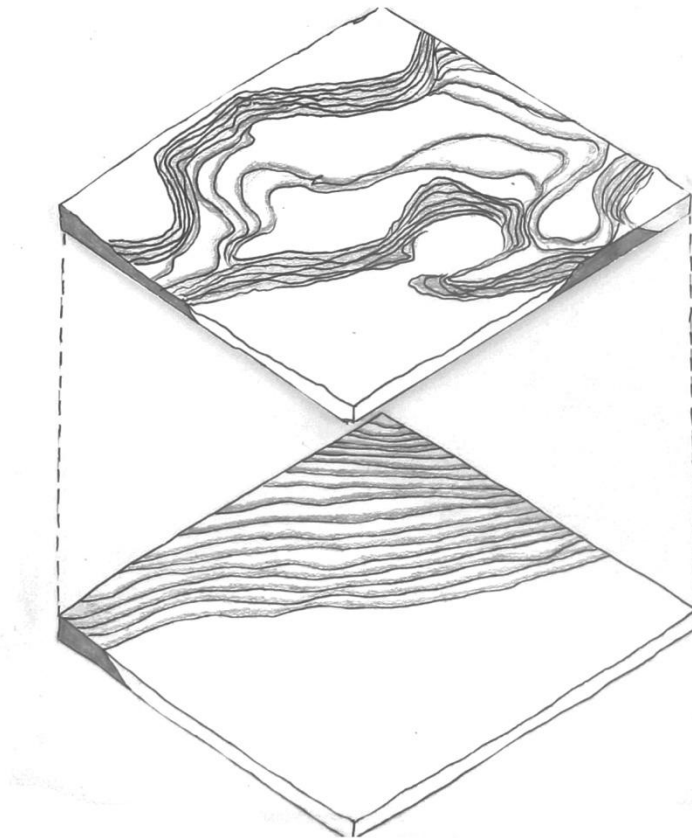


Figure 32: Imagining the buried Alhambra

A buried beach

An obvious response to the loss of the old sandy shore through the Granger Bay reclamation inspired an intervention to bring the sea back to the site through a public land and sea interface where the amenity of the sea is restored. The present lack of a public space and an area where there is no physical interaction between human and sea further reinforced the decision to firmly establish a land sea interface by creating a public tidal pool area.

Figure 34: Imposing an artificial terrain



Small craft basin

The importance of the slipway used by the power boat club on the site was also noted and acknowledged that this amenity should remain as it is this function that motivated the Granger Bay reclamation. The slipway is well utilised as it is important for the livelihood of fisherman. It is also one of a kind as it is the safest point and only place for small craft to enter Table Bay. It is also well positioned for the snoek run that happens annually. Currently the slipway is run down and the power boat club operates out of a shed on the site. It was decided that both these amenities need to be upgraded along with boat and kayak storage facilities.

The board walk

Currently the board walk that stretches from the Waterfront's East Pier to Granger Bay is a popular attraction yet has not realised its full potential. The board walk abruptly ends at Granger Bay which is a "middle of nowhere" end to the route. Thus the envisaged boardwalk will be continued and end at the Granger Bay peninsula. The site will be treated as an end point and important 'head' to this boardwalk, and consequently the board walk will 'string together' the key infrastructures placed on this site thus realising its full potential.

Approaching and rupturing site

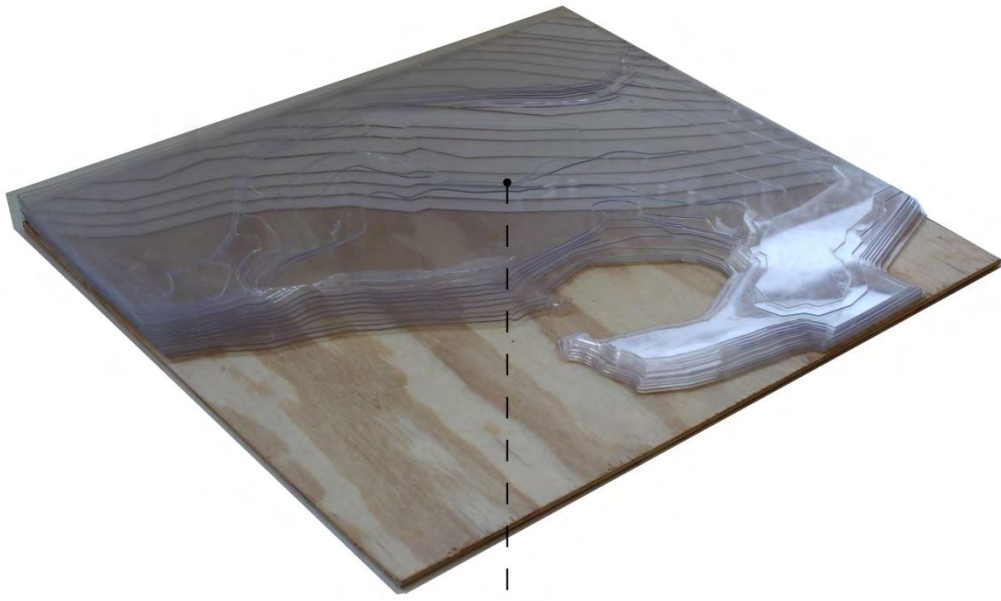
The manufactured landscape versus the natural landscape

The process of constructing terrain by refashioning and shifting land where making architecture borders on making nature has been the approach to the design of this site. The notion of the man-made now constituting nature in these manufactured landscapes of our time has been at the forefront of the design. The boundary between the 'nature' of the site and the built architecture will be blurred in the sense that buildings will appear to emerge from the ground in form and materiality.

The monolithic manufactured architecture and site will be fashioned out of rubble using the rubble that is on site. The idea of 'unbuilding to build' is the story of the life and death cycle of our built environment and as these new structures emerge from the ruins of the old they will represent bones. And like bones the programming of this site will set up a structure for activities where the suggested landscape will provide a structure for different and varied activities to happen. This carved landscape made from rubble is inspired by the plaster cast of the circuit board – a ruined carved up landscape.

Furthermore architectural elements are treated as ruptures, again enforcing the idea of buildings emerging out of the land, at a point of concentrated energy.

Figure 35: model showing natural landscape (triplex) and manufactured landscape (perspex)



Resurrecting the Alhambra and its memory

The Alhambra theatre will be brought back to life through programme of a dual theatre and will be physically refashioned out of its own ruins. Continuing the analogy of bones, the outdoor amphitheatre will host various performances however when there is no performance happening and cold winter months don't permit, this amphitheatre becomes a landscape or a place to sit, again just the remaining bones of an activity and the carcasses of the lost Alhambra.

Presensing Fort Wynyard lines of sight and fire

The sight lines that radiate out from Fort Wynyard onto Granger Bay are given importance by setting up an imposed geometry onto the site. The site is treated and designed as a spectral field of forces where certain elements cling to the Fort Wynyard geometry as if it was a magnetic force.

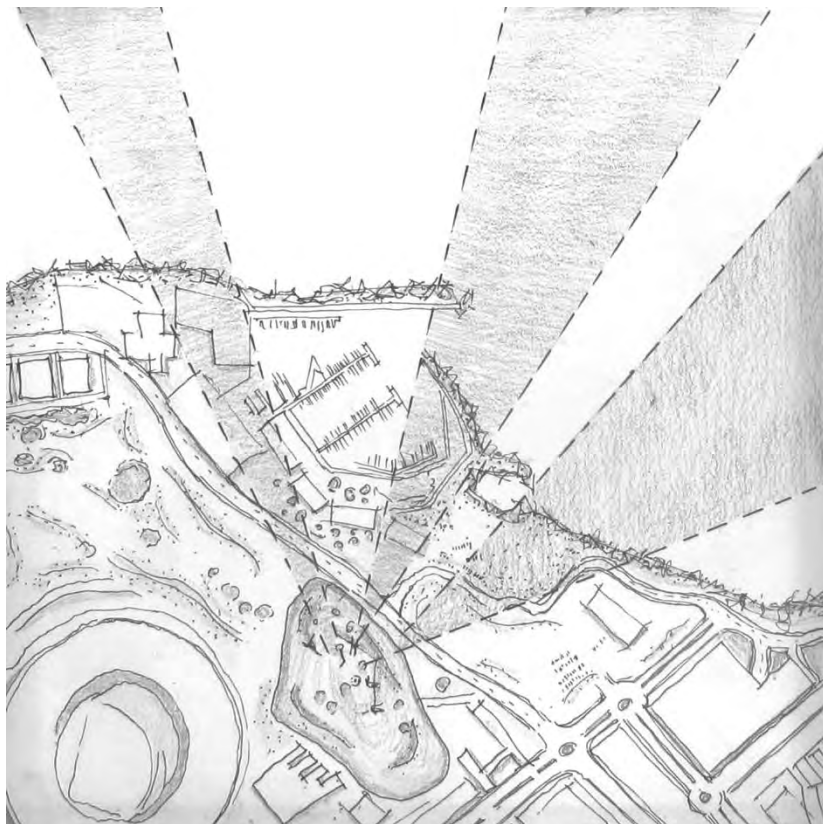


Figure 36: 'Kyk in die pot'

Blurred boundaries and disaggregated programme

In this design Granger Bay is a carved domesticated landscape with points of infrastructure that rupture the site. These key points of infrastructure will be in the form of the various programmatic functions outlined earlier. The various range of programme from intensity and scale echoes that of the surrounding Green Point area. Similarly the site is strewn with disaggregated programme that cling to points of intensity.

This notion of a disaggregated programme echoes that of the circuit board and how functions are separated out and then connected by copper routes, an ordered terrain of separated function.

The manufactured landscape is no longer conducive to the traditional notions of landscape, boundary and building. Boundaries are blurred between nature and man-made, enclosure and opening, object and field.

Restoring a shore interface through tides

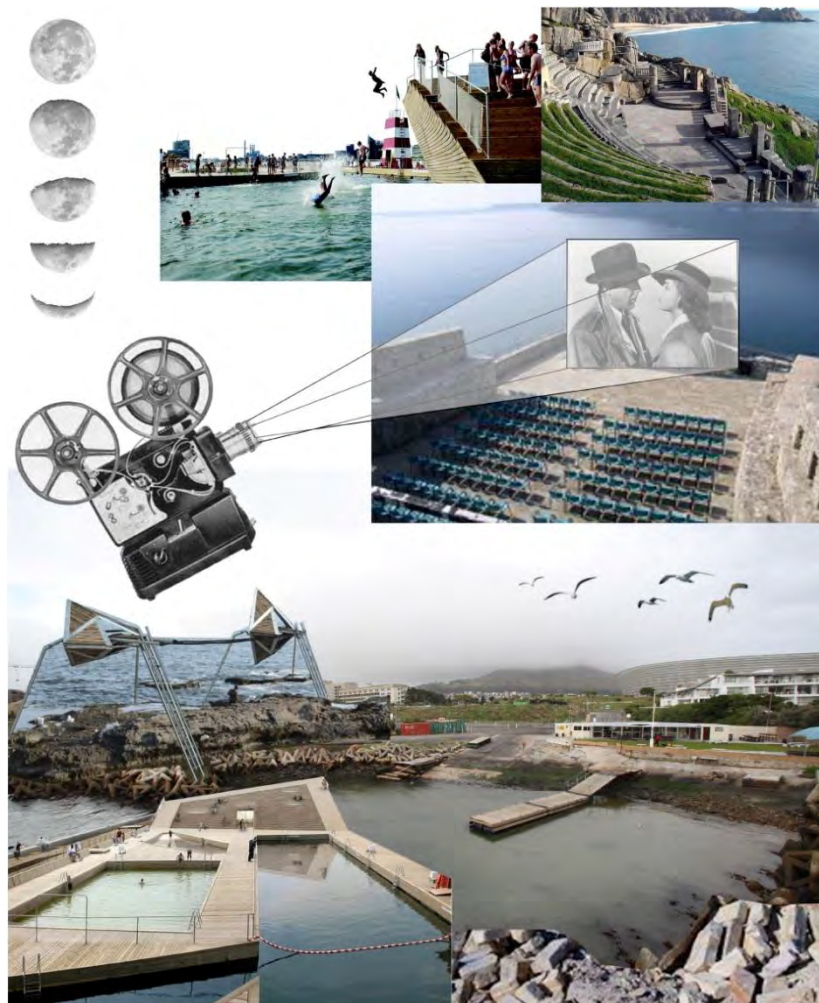
With the reclamation of Granger Bay a sandy beach was lost, and in turn a public interface with the sea. The current breakwater is a hostile interface with large dollosse and broken bits of concrete making up a hardened edge that would have to clamber precariously over to reach the sea. To restore the amenity of the sea in this area a tidal pool zone is made up by carving up the shoreline into platforms and pools that the public can engage with. The start of this tidal pool zone is marked by the line of the original natural shoreline.

The tidal pool zone on the site clearly illustrates the analogy of 'bones' where the area is dictated by the tides. When it is high tide there are full pools for people to engage with but when the tide has retreated what is left are the 'bones' of this infrastructure laid bare; a carved landscape of rubble for the public to engage with as they please.

Stitching the site together

In this strangely disordered yet ordered landscape the thread that will sew these disaggregated elements together is the pedestrian board walk; like the copper wire on a circuit board .The structure is the antithesis of this heavy carved landscape; a skeletal timber walkway that touches the ground lightly and links its way from activity to activity. The boardwalk will continue from the petered out boardwalk that currently ends at the site, drawn to high points of energy throughout the site, the boardwalk becomes an ordering element of its own and then ending out at sea at the end of the peninsula in platforms for casual fishing activities and viewing.

Figure 37: Atmospheric collage exploring look and feel of design



Staging the process

Lastly and possibly most importantly will be staging of the process of constructing the site. The main public plaza of the scheme will initially act as a sorting yard for rubble. On the periphery the main structures or shells of buildings and tidal pools to come will act as rubble housing bins. Different bins will house specific types of rubble such as: concrete rubble, brick, small coursed rubble, large course rubble and so on. The rubble on site will do a full circle from being excavated, to being sorted to finally being used as fill / construction material. As the bins will be modelled around the design they will not be demolished after use, they will become a part of the building, remaining ever present in the design. The entire scheme will be constructed from the current ground at Granger Bay where the cut of the land will cancel out as fill or as building material. Again, continuing the theme of manufacturing the landscape and unbuilding to build.



Figure 38: example of material housing bins sourced from <http://www.stevensconstructioncorp.com/concrete-excavation.htm>

Design development

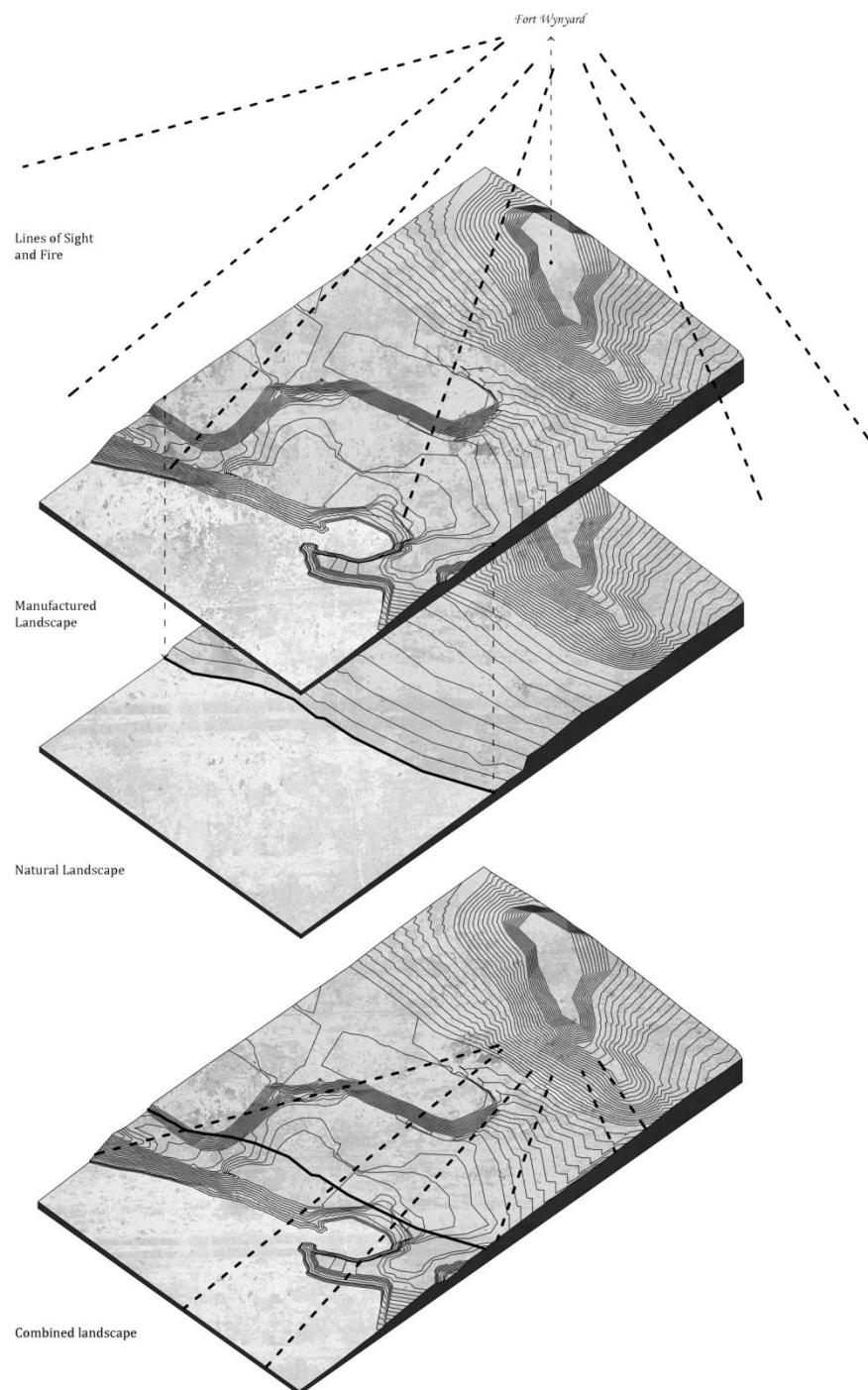


Figure 39 : imposed geometries that will inform design: the natural shoreline & Fort Wynyard sight lines

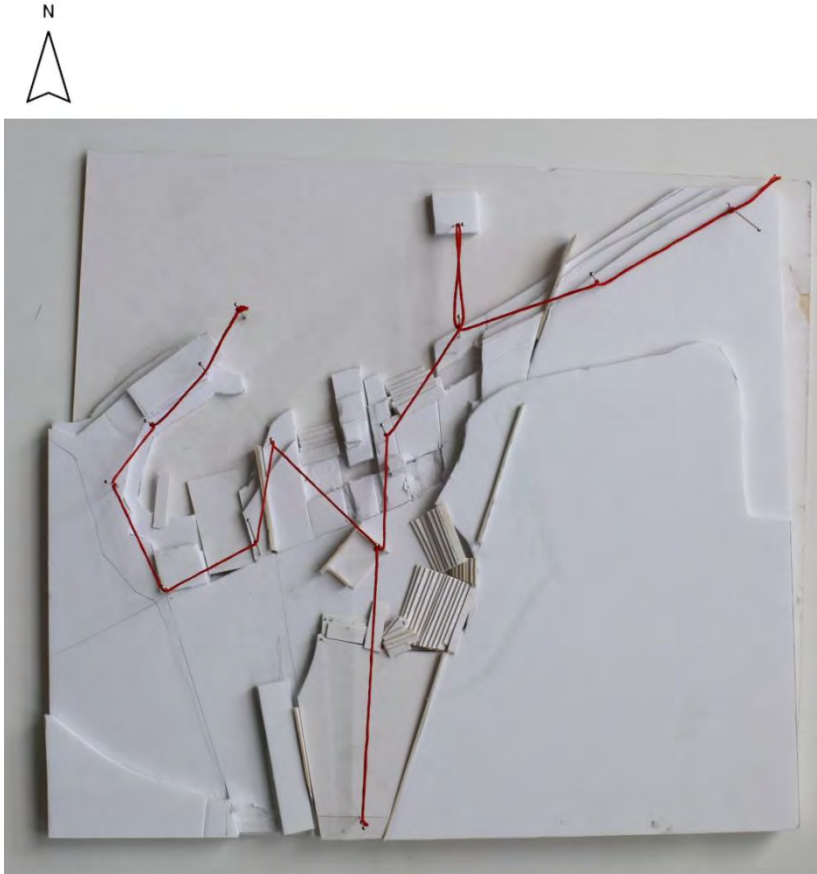


Figure 41: Figure 35 : model investigation exploring rupturing and carving up of the site through imposed geometries

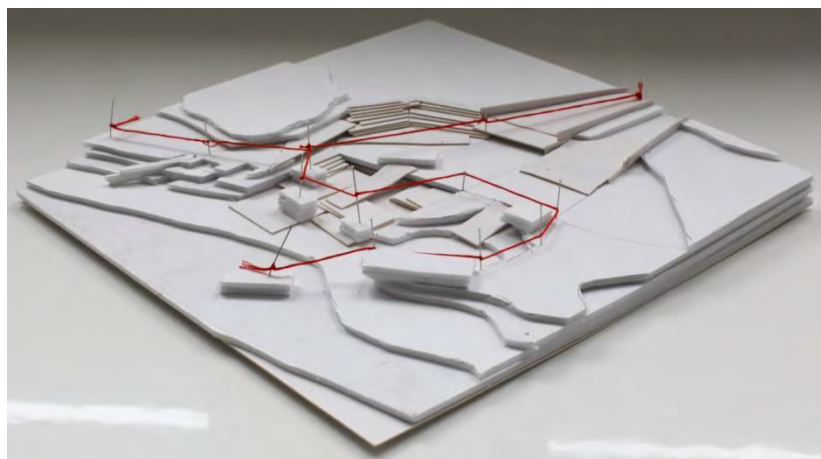
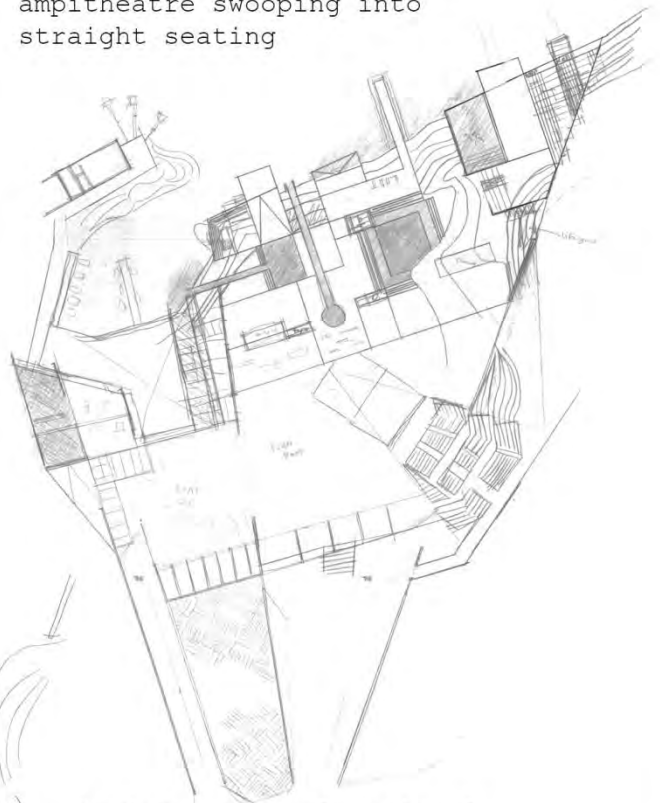


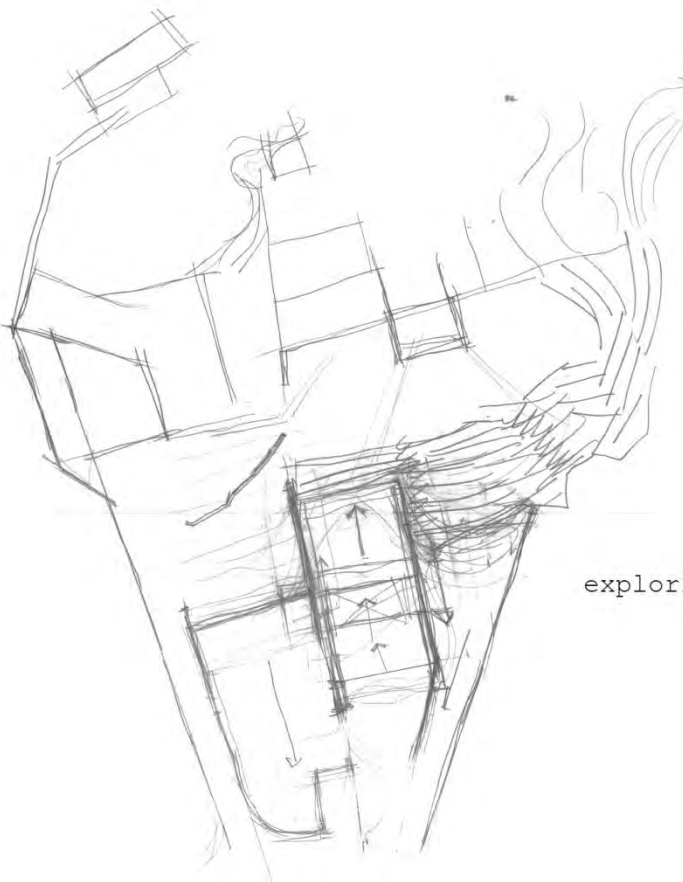
Figure 40: Further model investigation. red string representing boardwalk as a connector



Sketch exploring boardwalk
(red trajectory) and
amphitheatre swooping into
straight seating



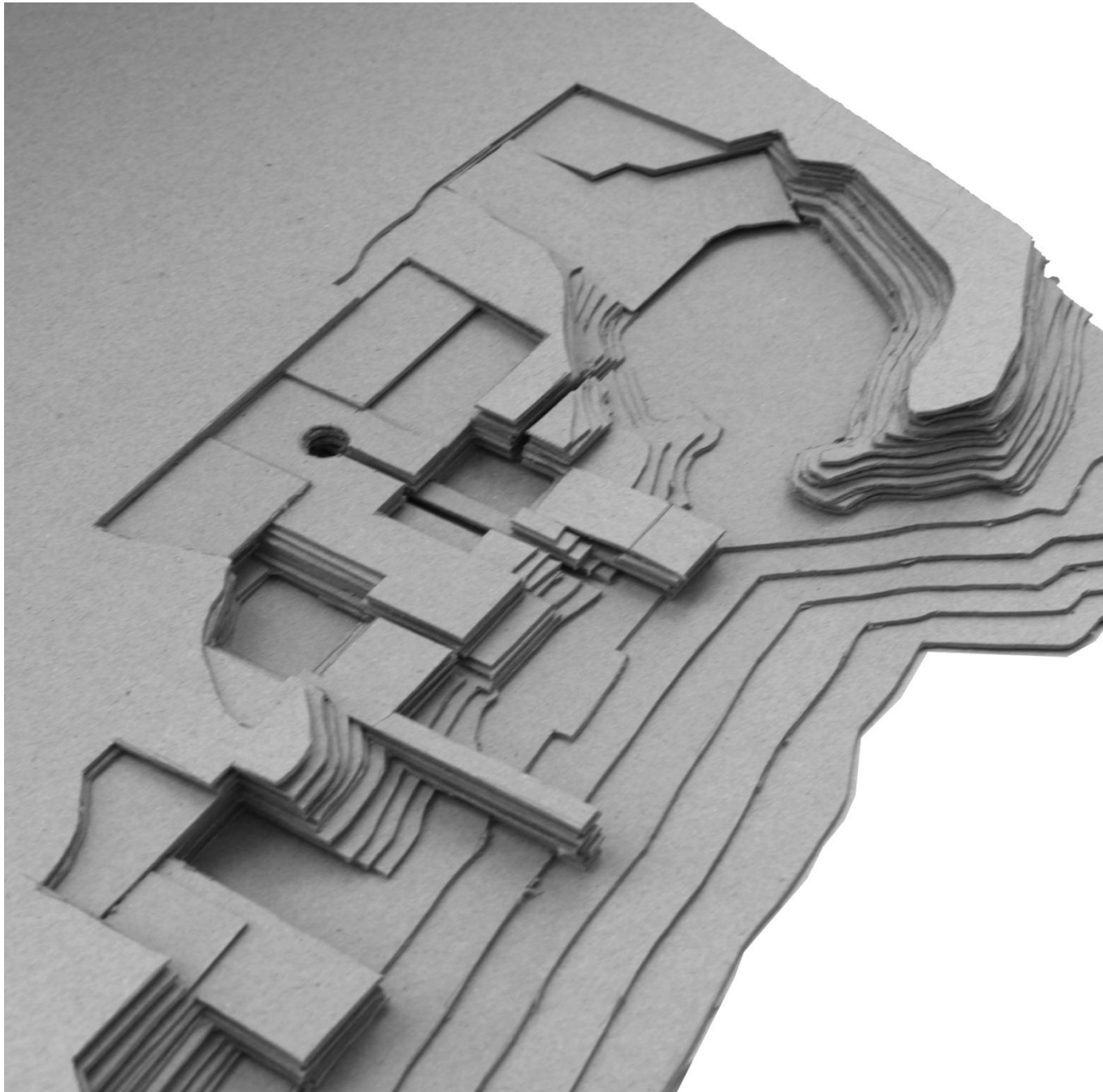
Amphitheatre exploration 2



exploring theatre 'rupture'

Figure 42 : design development sketches

Figure 43 : model exploring tidal pool zone where the sea eats its way back to the original shoreline



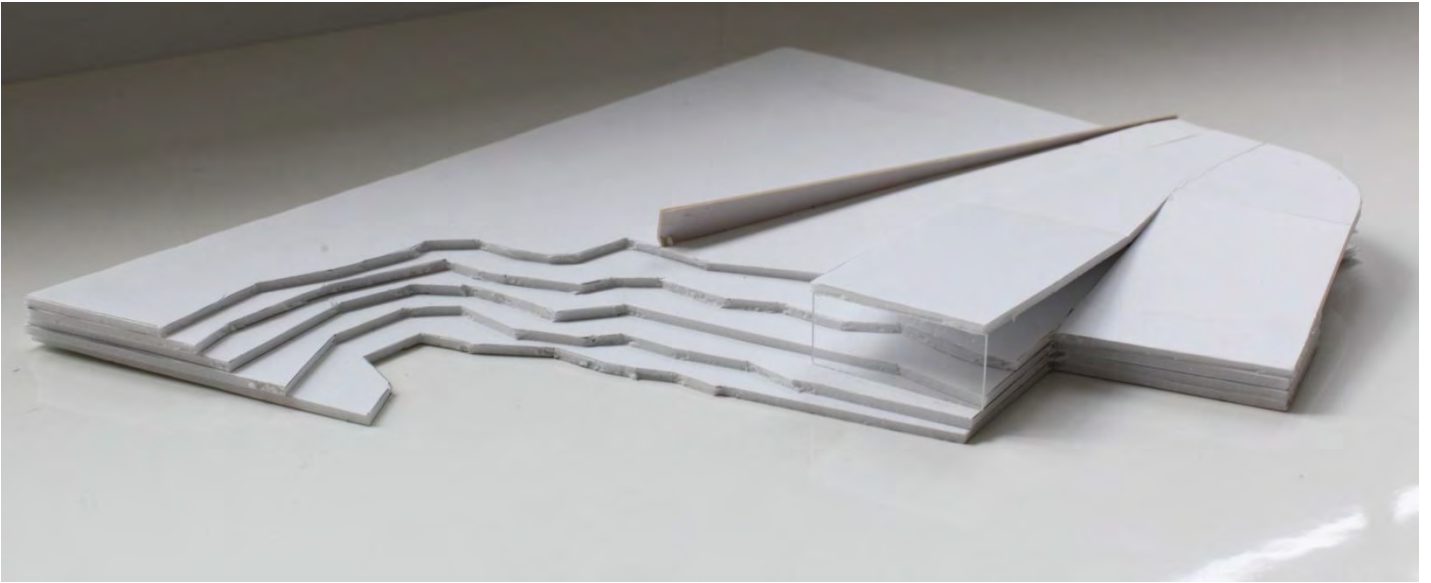


Figure 45: Model investigation of ampitheatre and indoor theatre 'rupture'

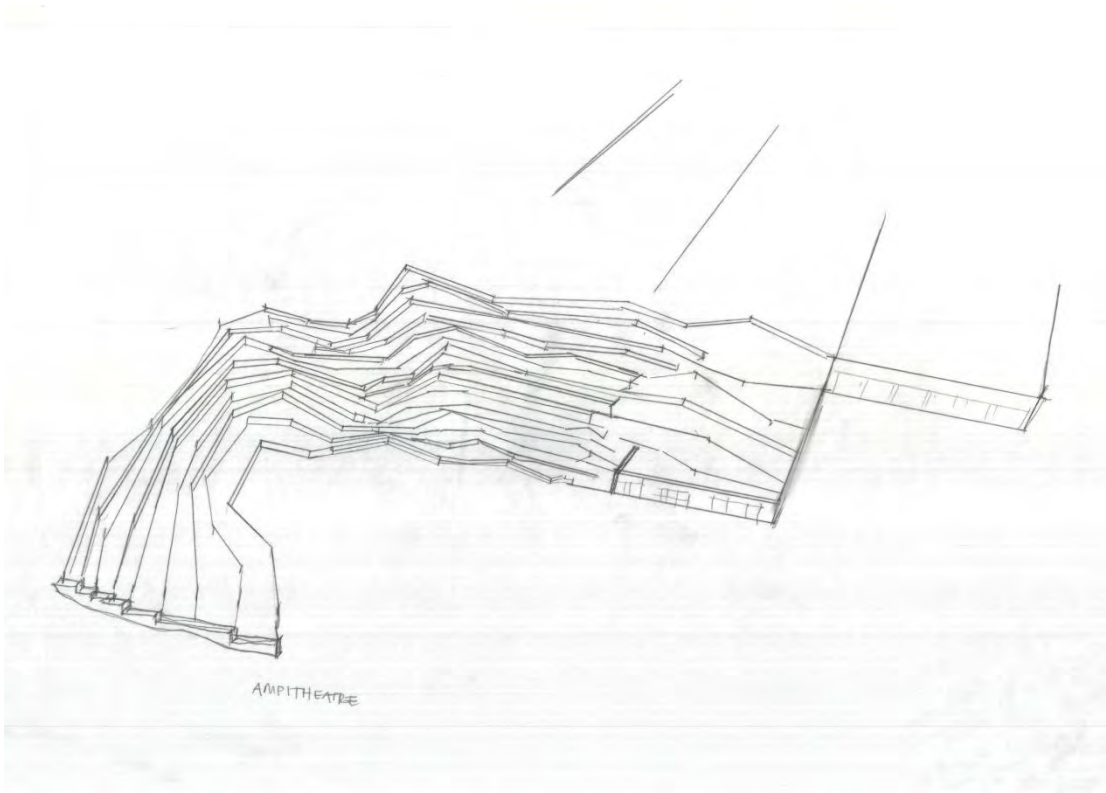


Figure 44: sketch of jagged ampitheatre seating merging into indoor theatre

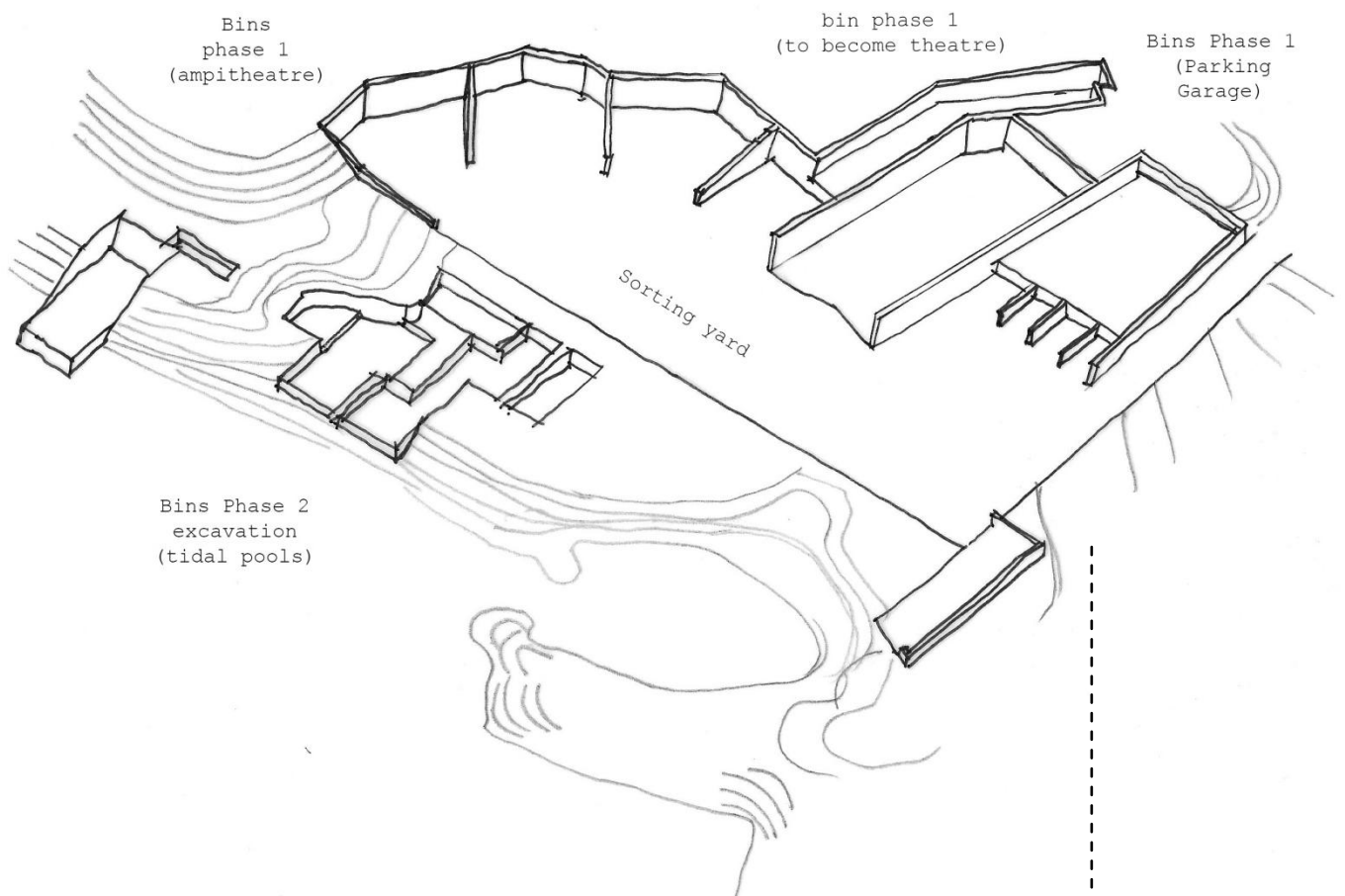


Figure 47: Staging the process, bins and sorting yard

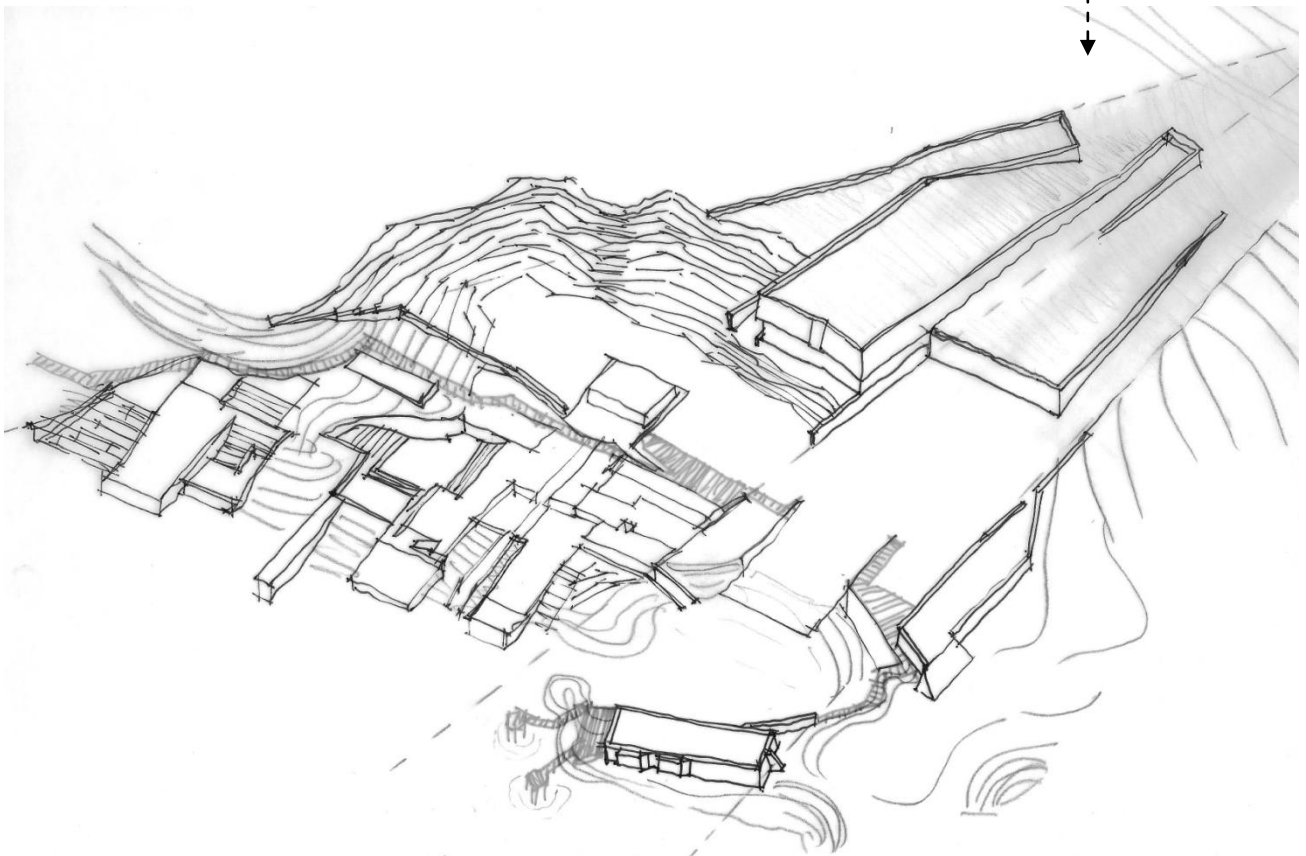


Figure 46: Design development showing carved landscape developed along sight lines. 'Rupturing granger Bay'



Figure 48: Programmatic diagram

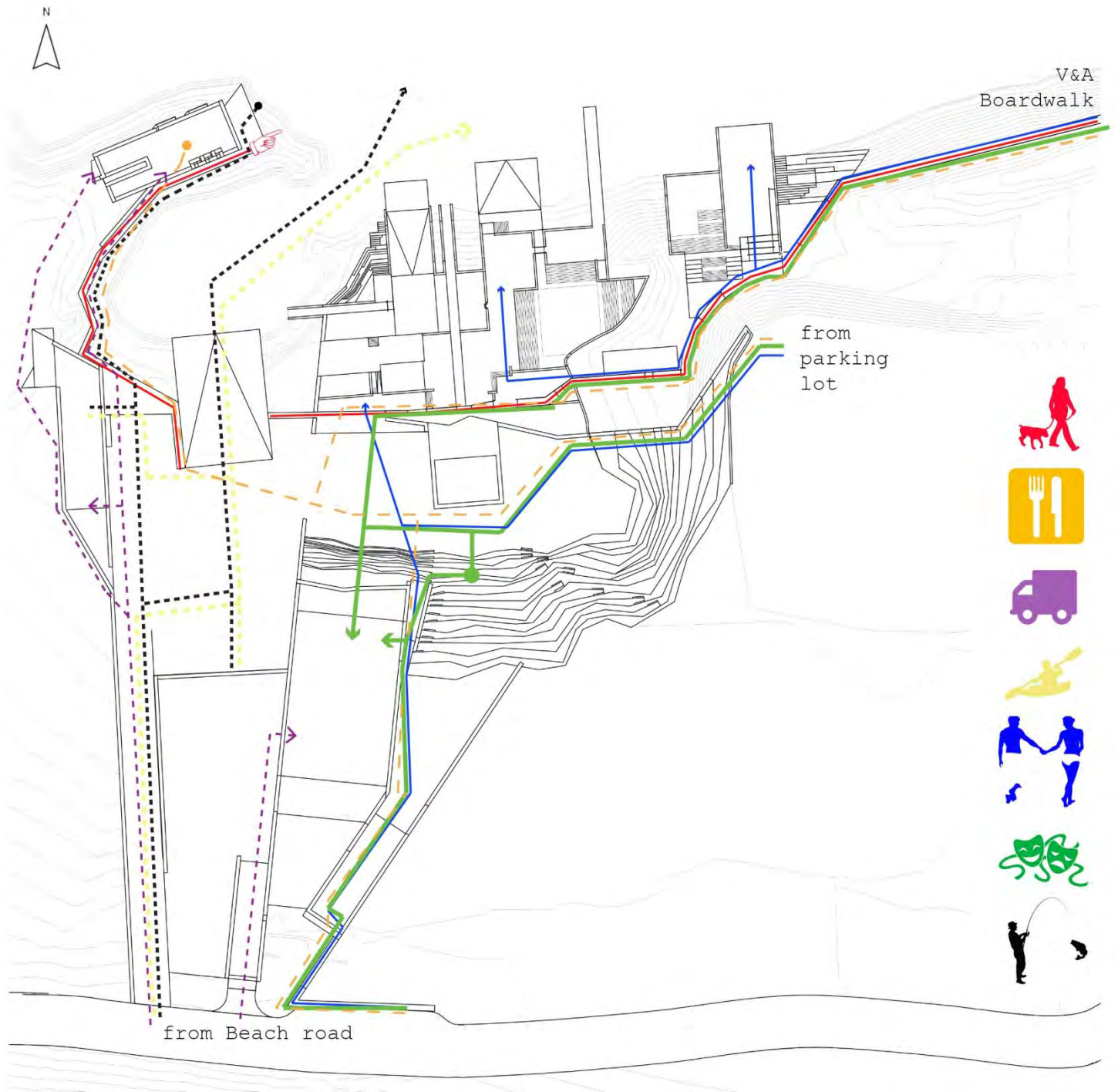


Figure 49: movement routes of various site users

Conclusion

Throughout the process of this dissertation I have explored an architecture that can truly represent the reality of the manufactured landscape and the complexities of such a morphology. It is with this interest that I found Granger Bay and its inherently manufactured qualities. A landscape that is simultaneously natural and artificial.

In the study of this site, like an archaeological investigation, the story of 'unbuilding to build' arose from the ground; discovering Granger Bay's true *genius loci*, which is grounded in rubble and the stories of the buildings that make up its rubble ground. It was with these ideas that I allowed the landscape to inform and generate a unique architectural language where boundaries are blurred between nature and man-made and enclosure and opening.

The key informants to this design are the various geometries and forces that act on the site: Fort Wynyard's sight lines, the buried natural landscape, the ocean, rubble ground and the memory of the Alhambra Theatre.

Through design I hope to have harnessed the sites latent energies and unleash the potential of Granger Bay's favourable location with key infrastructure and public space.

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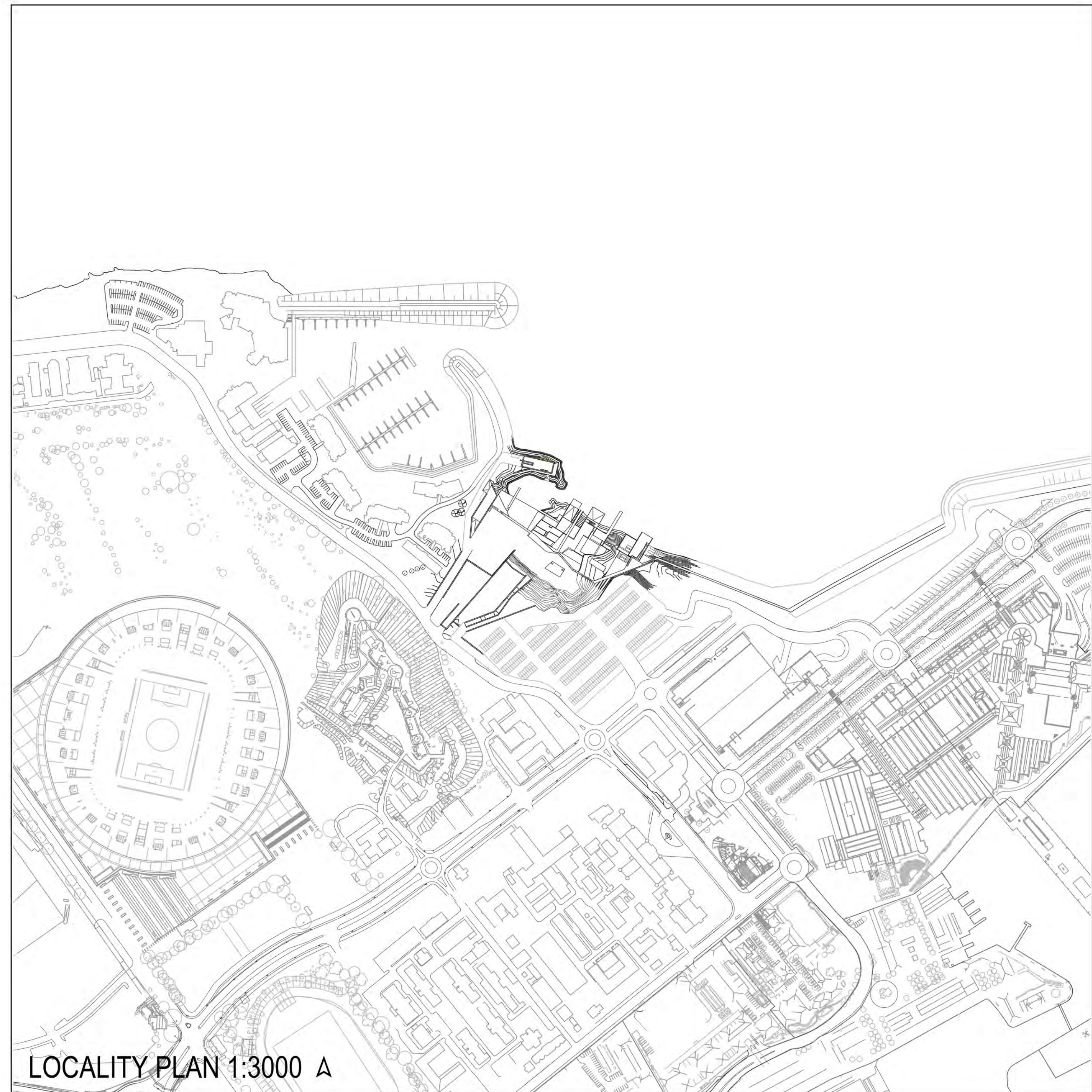
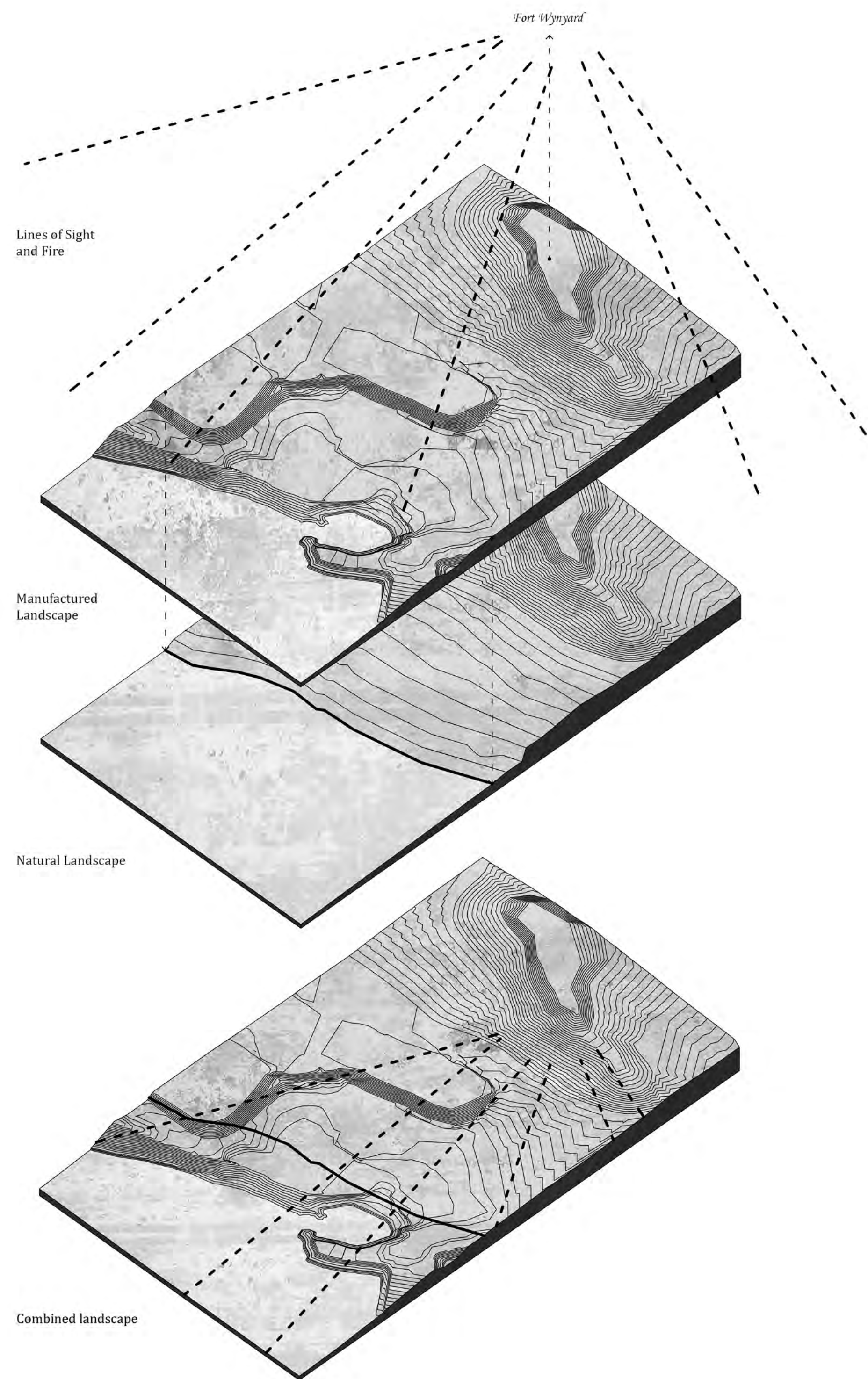
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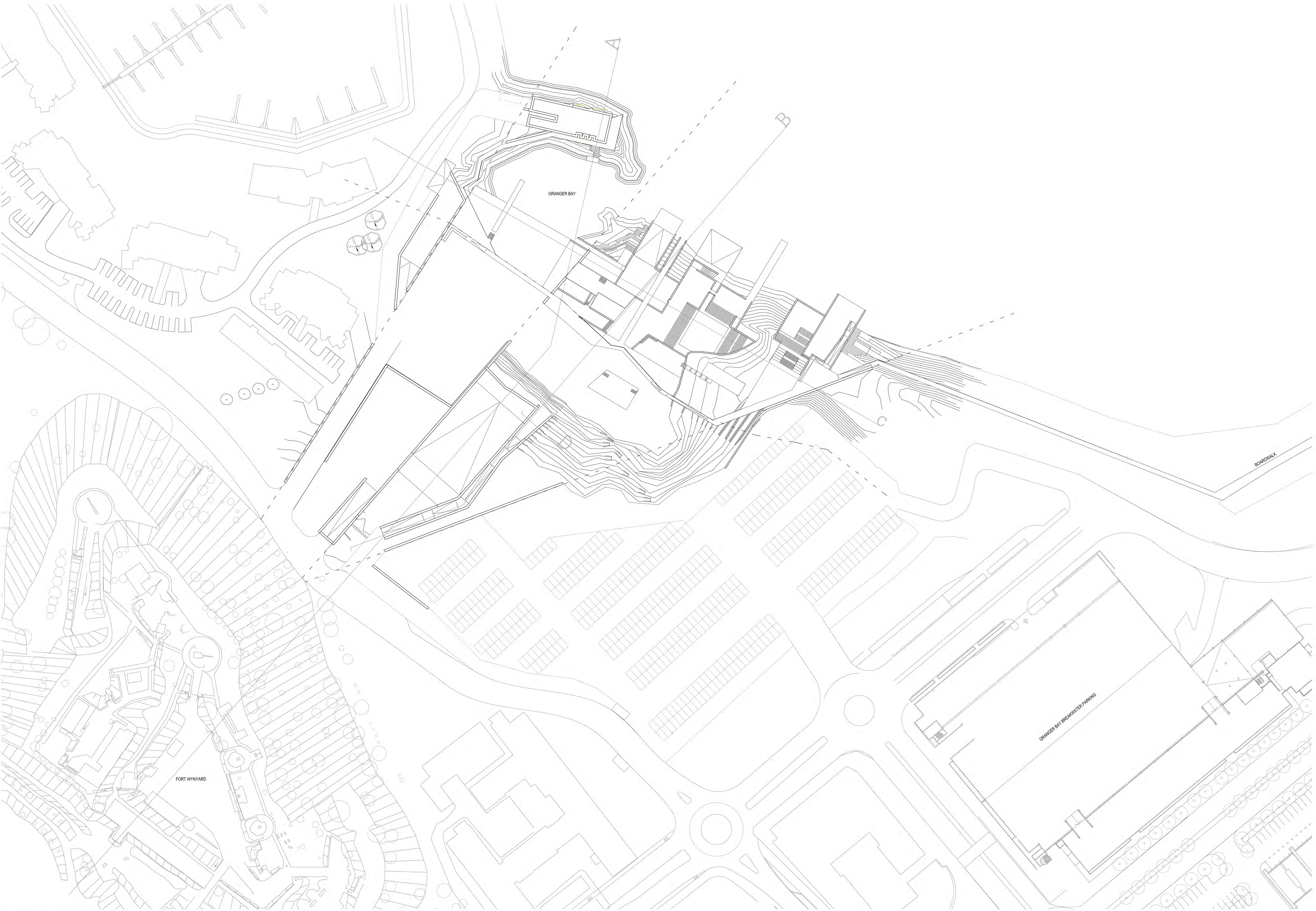
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Addendum

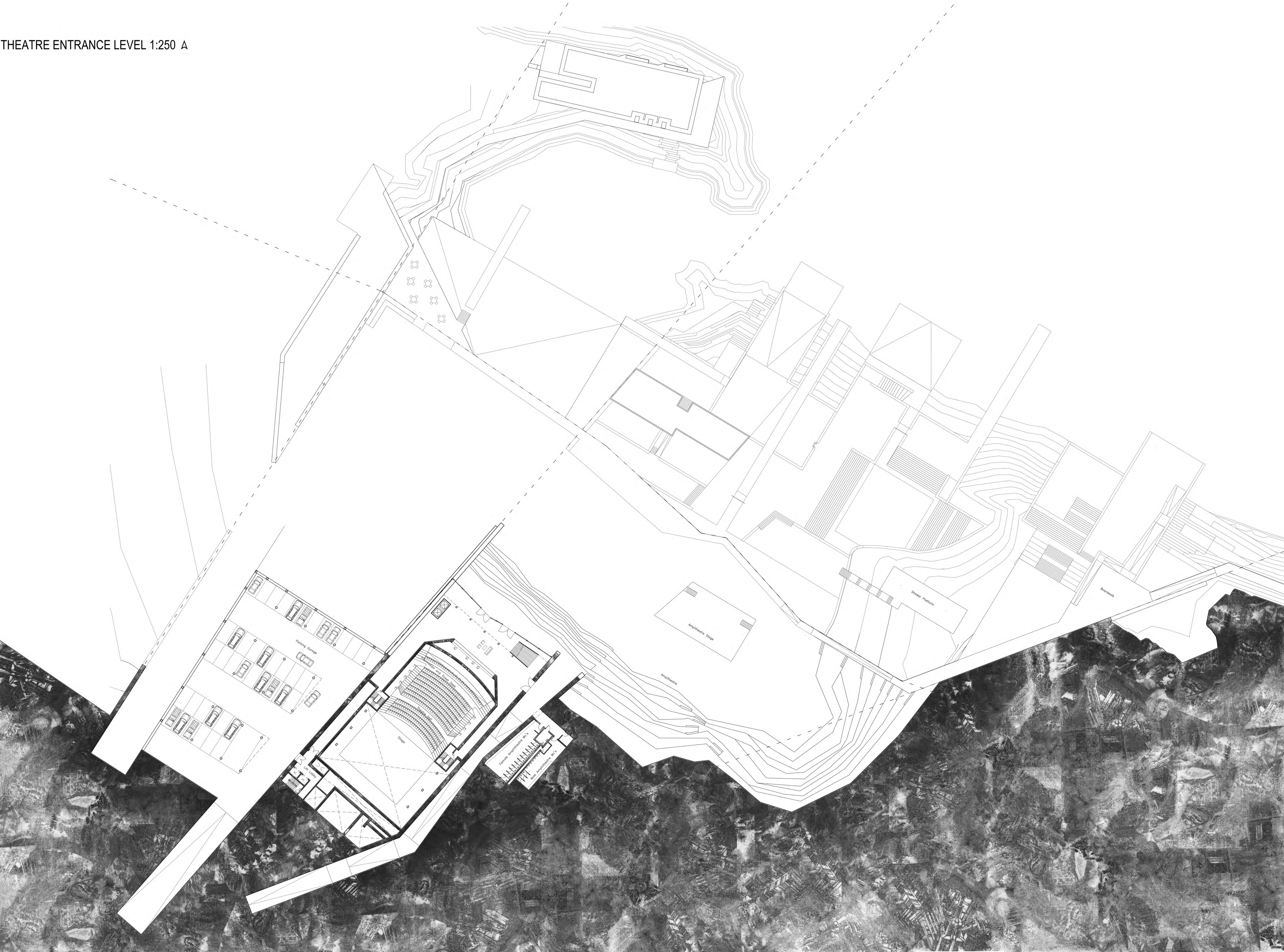
Final Drawings



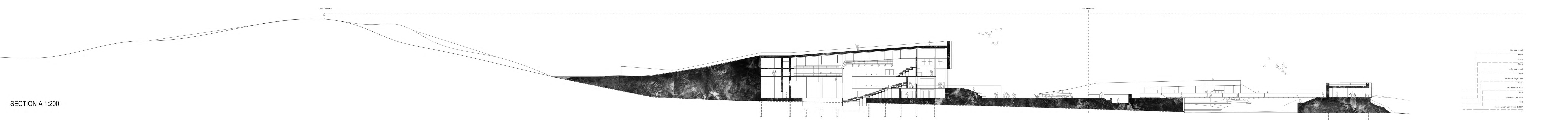


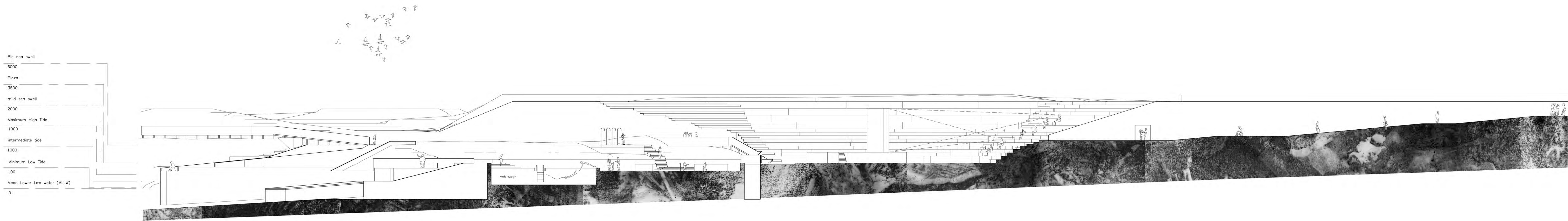
SITE PLAN 1:500 A



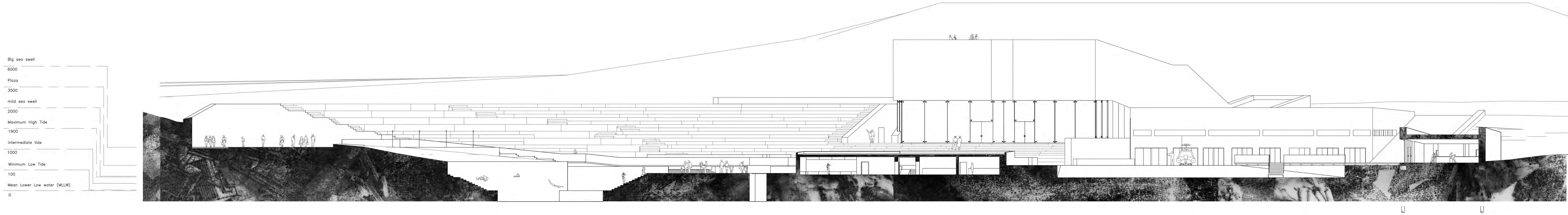


SECTION A 1:200

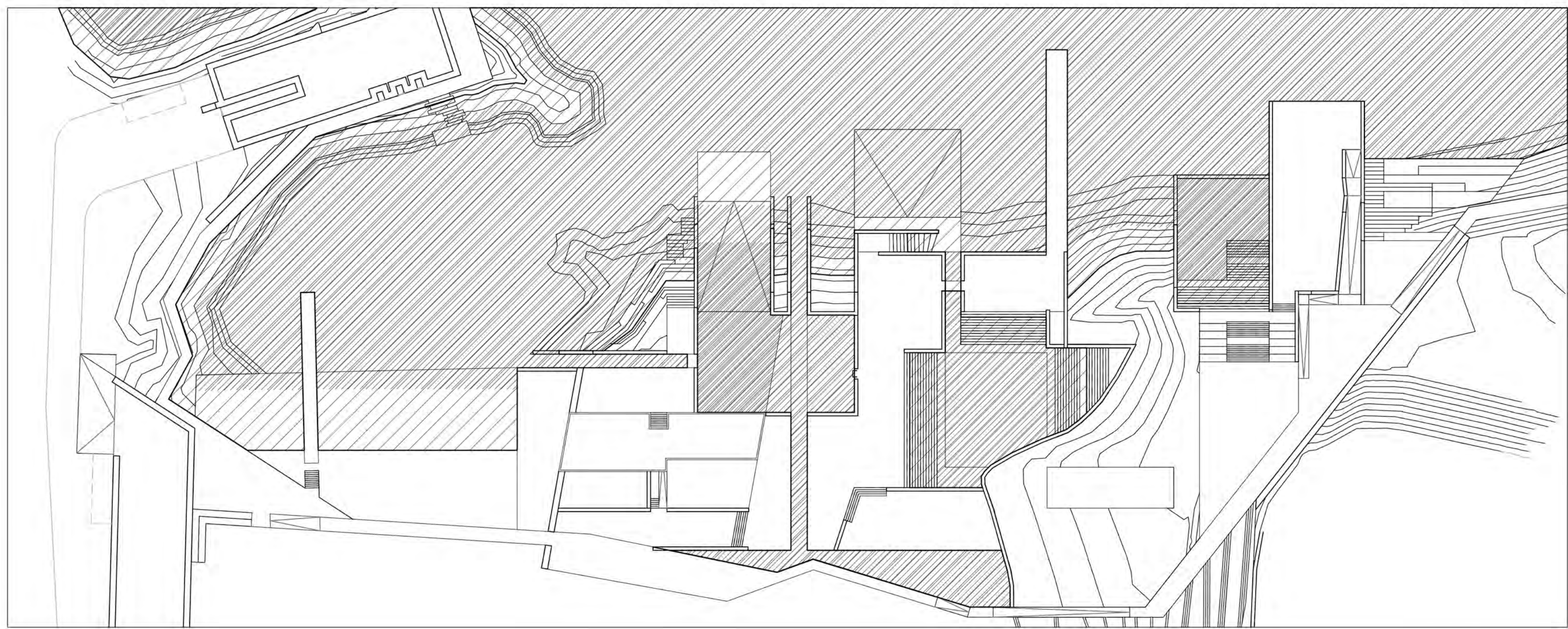




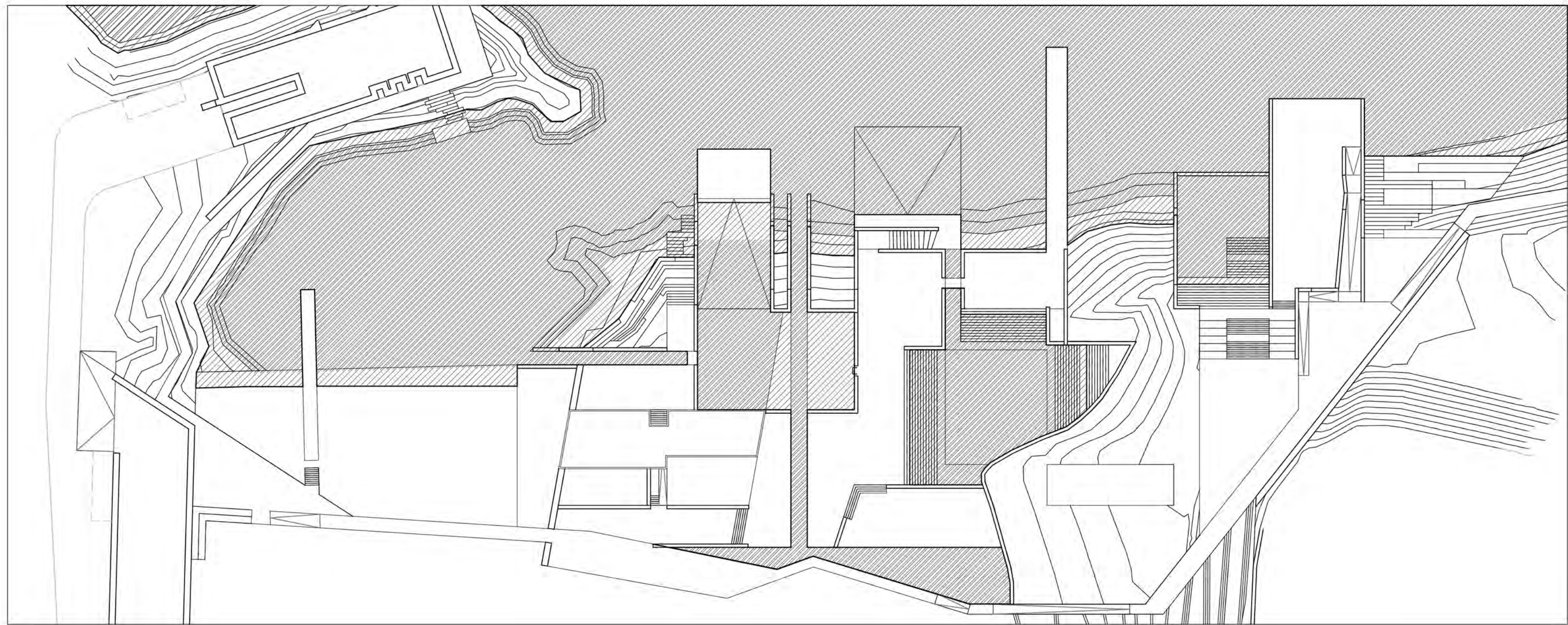
SECTION B 1:200



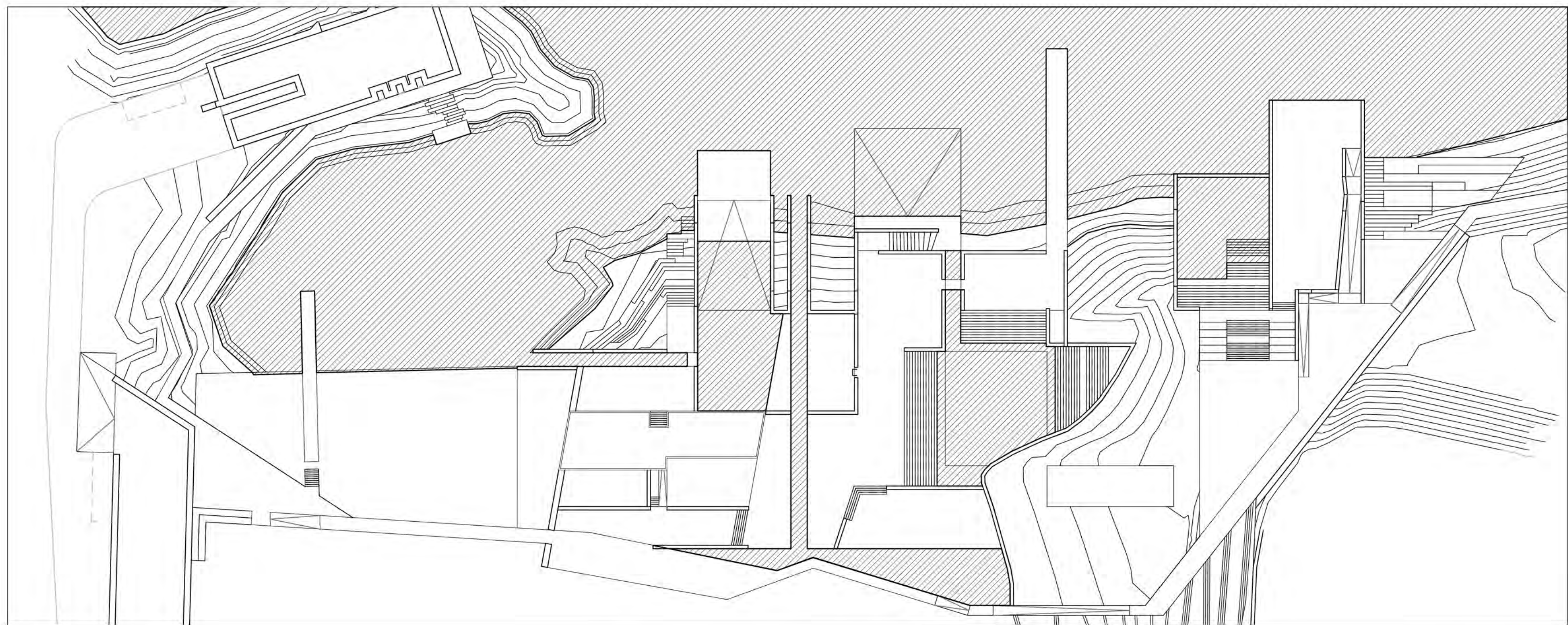
SECTION C 1:200



HIGHEST HIGH TIDE



INTERMEDIATE TIDE

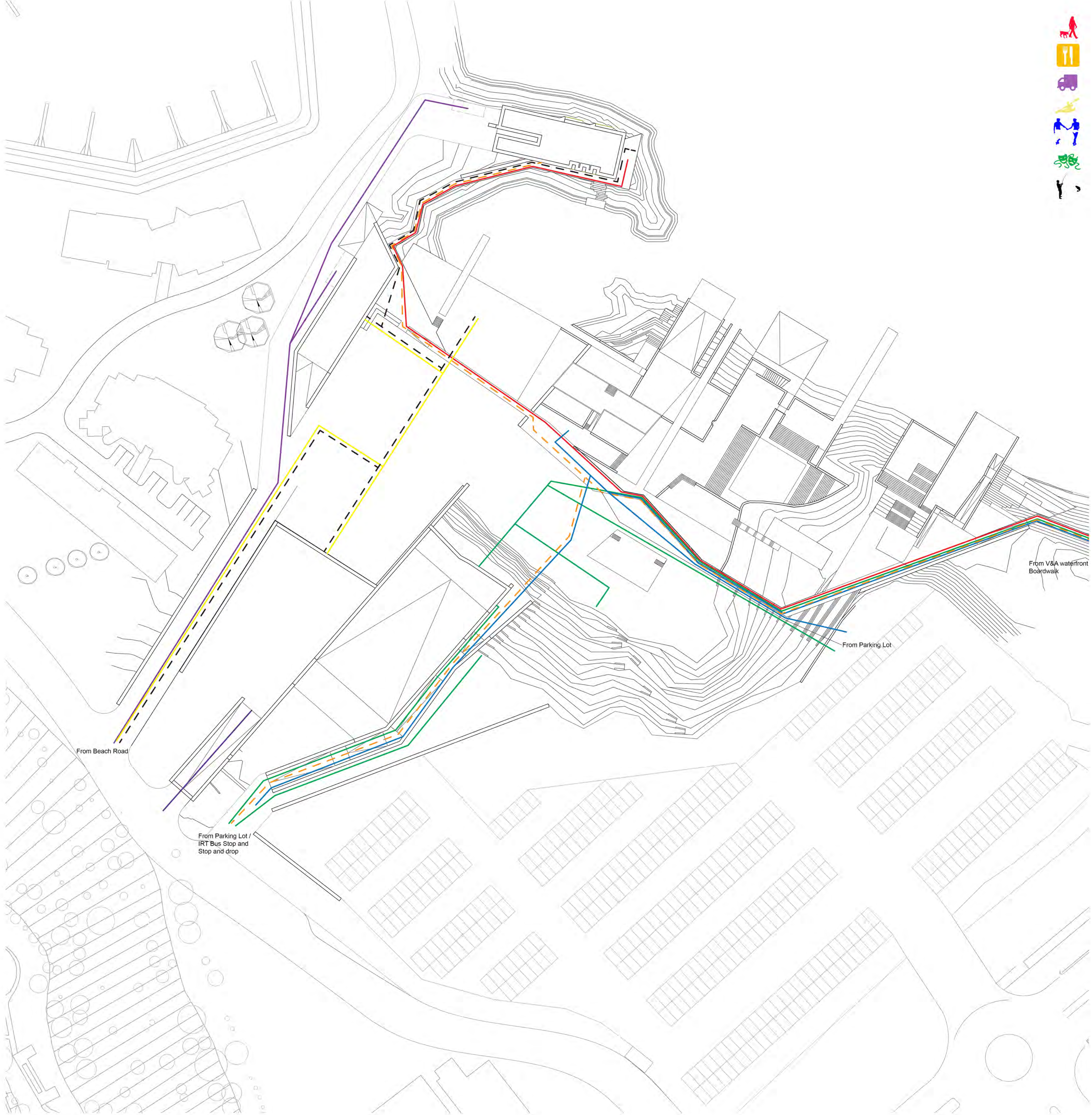


THE TIDES 1:500

LOWEST LOW TIDE

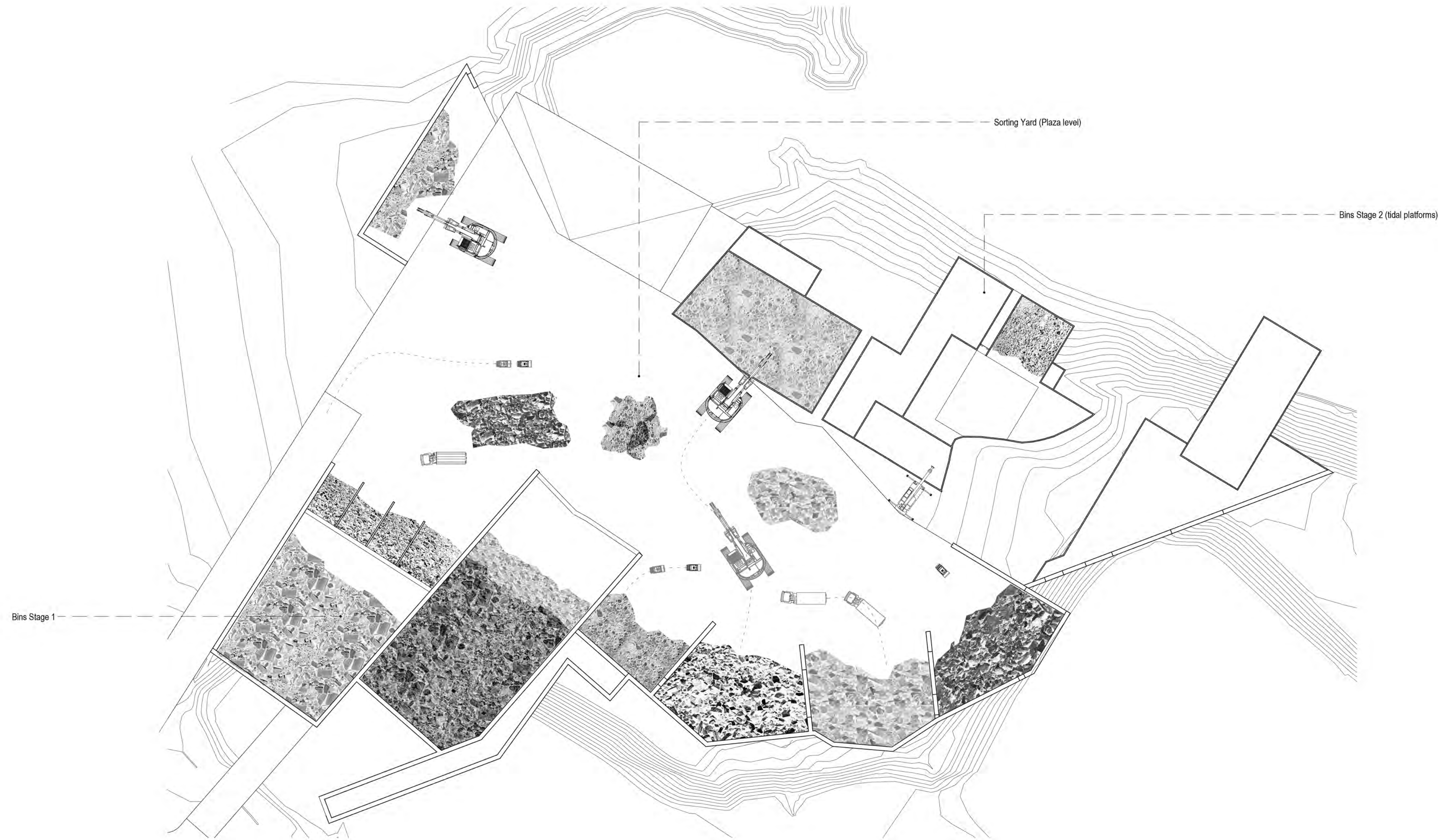


PROGRAMME 1:500

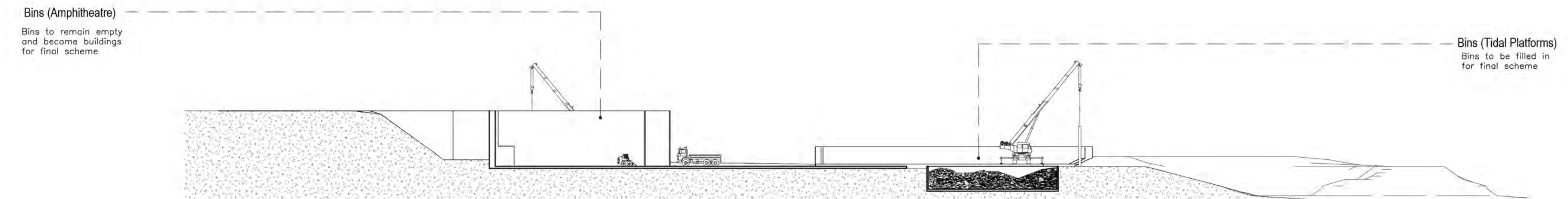


USER ROUTES 1:500

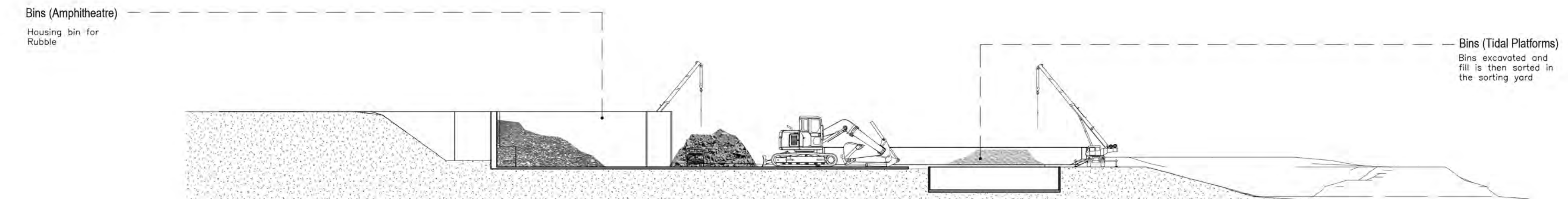




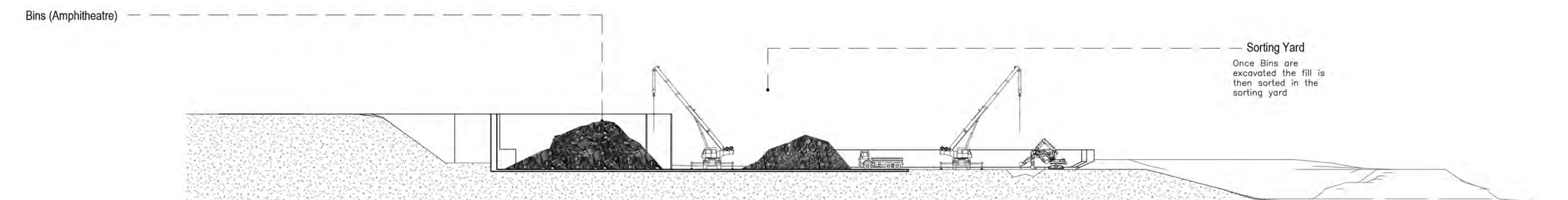
STAGING THE PROCESS SITE PLAN 1:500



STAGING THE PROCESS PHASE 3



STAGING THE PROCESS PHASE 2



STAGING THE PROCESS PHASE 1

1:500 TYPICAL SECTION

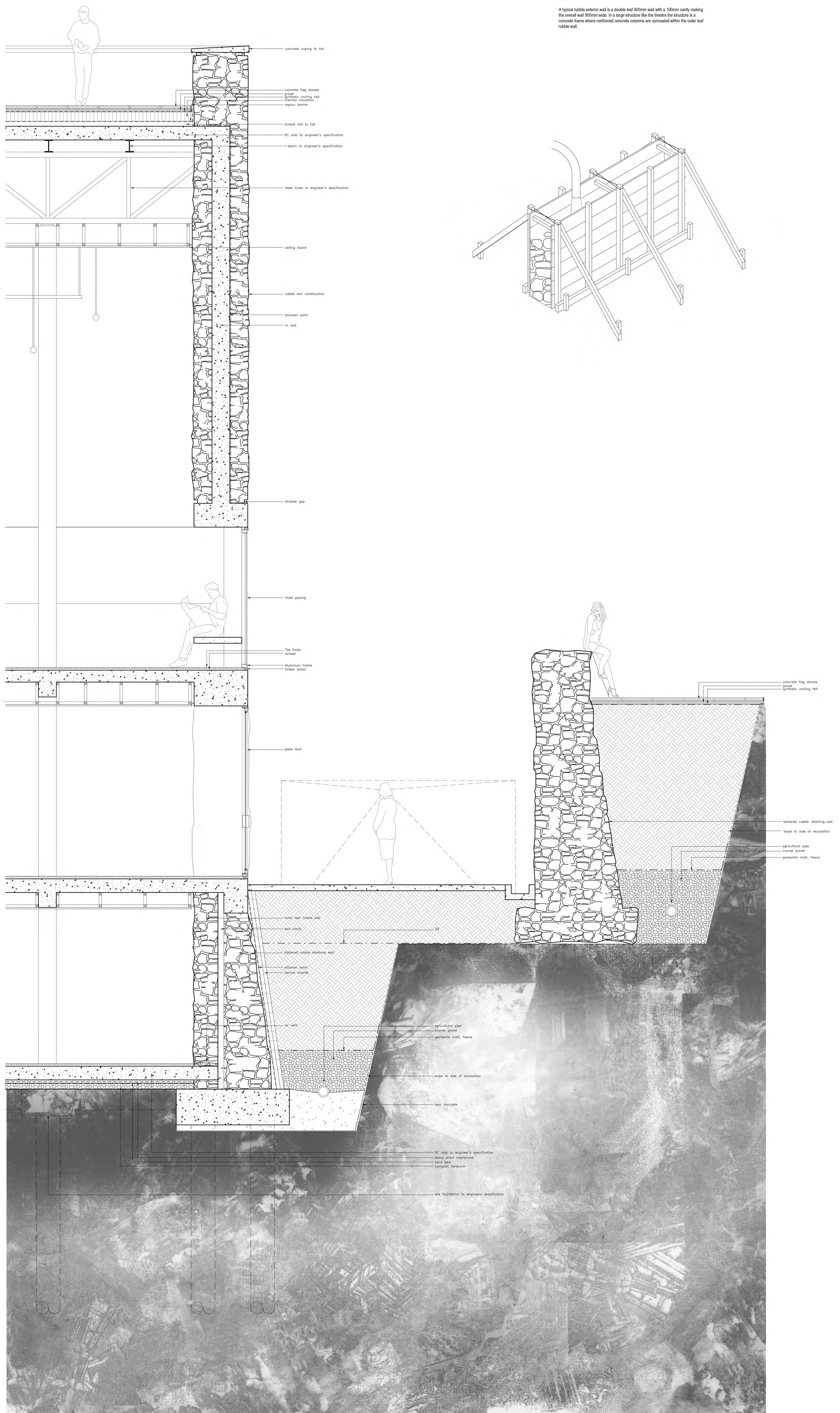
RUBBLE WALL CONSTRUCTION

A typical rubble wall is constructed by throwing uncoursed rubble of various sizes and texture into shuttering.

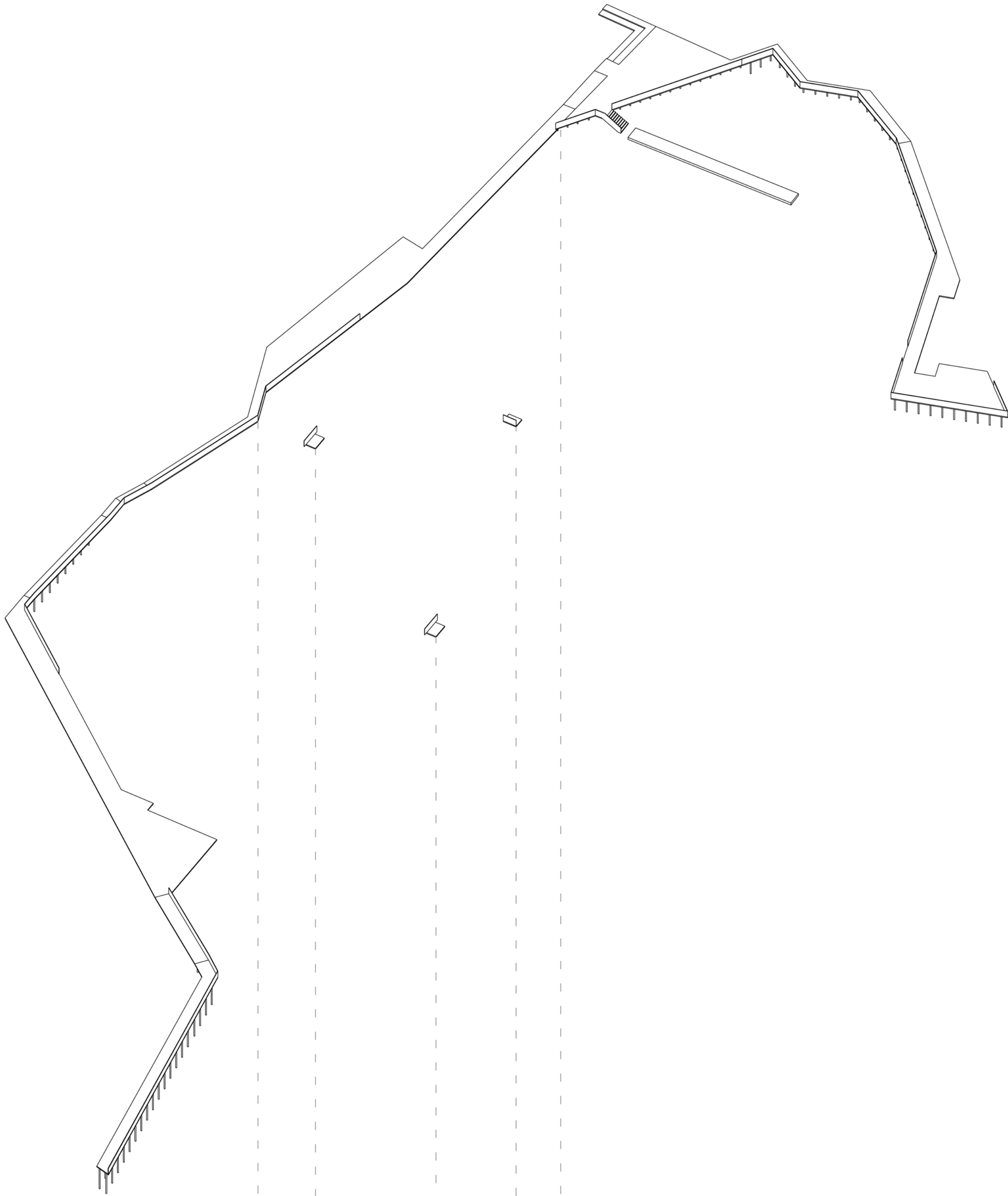
The shuttering is treated with a retardant that will help expose the rubble on the finish face. A concrete slurry is then poured into shuttering in stages. This will bind the rubble together. This method of construction is less labor intensive than stacking rubble to course and allows fine grain rubble to be used in the construction.

Once the shuttering is removed the wall is then blasted with a water hose to expose the rubble.

A typical rubble exterior wall is a double leaf 400mm wall with a 100mm cavity making the overall wall 500mm wide. In a large structure like the theatre the structure is a concrete frame where reinforced concrete columns are concealed within the outer leaf rubble wall.



TIMBER BOARDWALK
LIGHT WEIGHT SITE CONNECTOR



Parking Garage

Theatre

Amphitheatre

Stage

Oceana Powerboat club

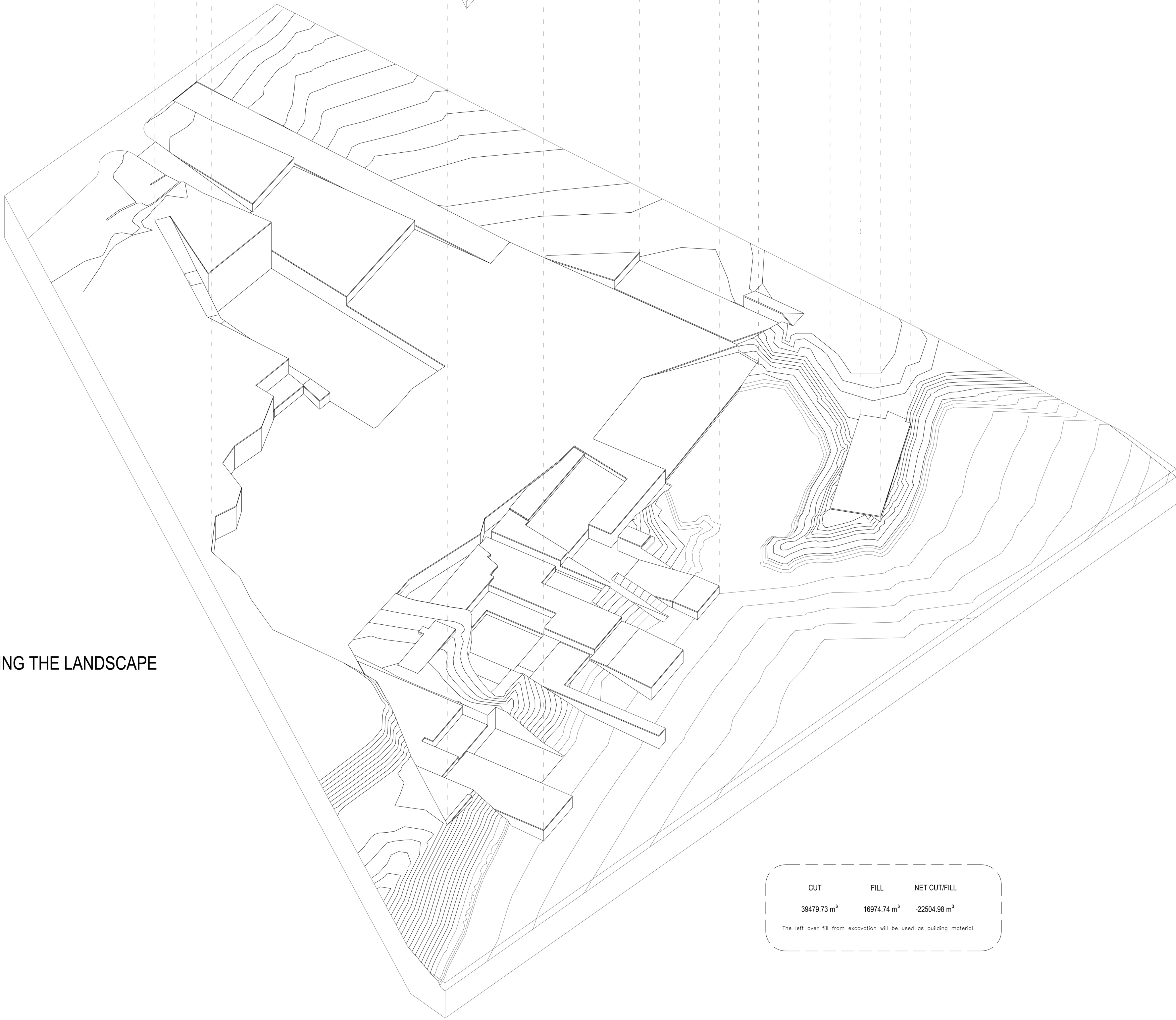
Boat & Kayak Garages

Small Craft Slipway

Restaurant (The Grand)

Tidal Pool zone

INFRASTRUCTURE
BUILT FABRIC (RUBBLE)



MANUFACTURING THE LANDSCAPE
CUT AND FILL OF SITE

CUT	FILL	NET CUT/FILL
39479.73 m ³	16974.74 m ³	-22504.98 m ³
The left over fill from excavation will be used as building material		

EXPLODED AXONOMETRIC N.T.S

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

FEEDBACK ON THE ASSESSMENT OF ETHICS IN RESEARCH PROJECTS

This form has been prepared to provide applicants with feedback on their Ethics Clearance applications submitted to the Faculty of Engineering and The Built Environment. For further correspondence regarding this assessment please contact Zulpha Geyer (**Zulpha.Geyer@uct.ac.za**)

NAME OF APPLICANT : Christina Philotheov	
CYCLE DATE: May 2014	
COMPLETED APPLICATION FORM	Complete, the work likely would not require a consent form as the information sought should not pose harm to any individuals
DETAILS OF METHODS USED	The methodology has been clearly thought out and is given in sufficient detail.
STATEMENT EXPLAINING HOW DATA OR SENSITIVE INFORMATION WILL BE SAFELY USED	The interviewed subjects should be made clearly aware of the motivation for the study. It is highly unlikely that this project will involve sensitive information.
COPY OF QUESTIONAIRE	Not included, but since the nature of the questions is information this will not likely be needed
CONSENT FORM	In order to ensure that the subjects are not coerced into responses that suit the researcher, it may be a good idea to have a questionnaire or consent form. However, given the nature of the subject it is the opinion of the reviewer that this would not be mandatory.
PERMISSION (STUDENT INTERVIEW)	Not required, unless the student would like to pose questions on private property, which does not appear to be the case
FURTHER COMMENTS	The project poses a low risk. However, the rationale behind the study should be made clear to individuals (verbally or in written form), prior to posing any questions.
RECOMMENDATION	Accepted

EBE Faculty: Assessment of Ethics in Research Projects

Any person planning to undertake research in the Faculty of Engineering and the Built Environment at the University of Cape Town is required to complete this form before collecting or analysing data. When completed it should be submitted to the supervisor (where applicable) and from there to the Head of Department. If any of the questions below have been answered YES, and the applicant is NOT a fourth year student, the Head should forward this form for approval by the Faculty EIR committee; submit to Ms Zulpha Geyer (Zulpha.Geyer@uct.ac.za; Chem Eng Building, Ph 021 650 4791). Students must include a copy of the completed form with the thesis when it is submitted for examination.

Name of Principal Researcher/Student: CHRISTINA PHILOTHEOU Department: ARCHITECTURE, PLANNING & GEOMATICS.

If a Student: Degree: M. ARCH (PROF) Supervisor: MELINDA STEVERMAN. NIC

If a Research Contract indicate source of funding/sponsorship: UCT POST-GRADUATE COETZER FUNDING

Research Project Title: GRANGER BAY: A CONDITION OF MANUFACTURED LANDSCAPES

Overview of ethics issues in your research project:

Question 1: Is there a possibility that your research could cause harm to a third party (i.e. a person not involved in your project)?	YES	(NO)
Question 2: Is your research making use of human subjects as sources of data? If your answer is YES, please complete Addendum 2.	(YES)	NO
Question 3: Does your research involve the participation of or provision of services to communities? If your answer is YES, please complete Addendum 3.	YES	(NO)
Question 4: If your research is sponsored, is there any potential for conflicts of interest? If your answer is YES, please complete Addendum 4.	YES	(NO)

If you have answered YES to any of the above questions, please append a copy of your research proposal, as well as any interview schedules or questionnaires (Addendum 1) and please complete further addenda as appropriate.

I hereby undertake to carry out my research in such a way that

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

Signed by:

Principal Researcher/Student:	Full name and signature <u>CHRISTINA PHILOTHEOU</u> Signed by candidate	Date <u>22.05.2014</u>
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Signature Removed

This application is approved by:

Supervisor (if applicable):

NIC COETZER

HOD (or delegated nominee):

Final authority for all assessments with NO to all questions and for all undergraduate research.

Chair: Faculty EIR Committee

For applicants other than undergraduate students who have answered YES to any of the above questions.

Signature Removed

23/05/2014

Signature Removed

2/06/2014

N.B See note from Reviewer.

ADDENDUM 1:

Research Outline

This research project is conducted to create an understanding of a particular typology of landscape; the Manufactured landscape. The site of Granger Bay in Cape Town will be used as an exemplar to explore the condition of a manufactured landscape. Furthermore, it is hoped that a theoretical standpoint will evolve as to the consequences of such a landscape. As a condition of our time the move from the natural to the manufactured is becoming more prevalent. As a consequence of this, an understanding in the shift of our reading of place shall be closely looked at.

Understanding Cosgrove's (1984) idea that there is a collective social construction of 'landscape' that has shifted with human evolution, this evolution has led us to the 'manufactured' landscape. The word manufactured suggests the making of, or fabricating of something on a large scale using machinery. This is a clear condition of our cultural and social circumstances in all aspects of life, and the landscape is no exception. The term 'manufactured landscape' refers to the man-altered landscapes in our world where man has changed the nature of the land through exploitation in satisfying the needs of our evolving society – thus creating new topographies (Pauli, 2003).

The phenomenon of the manufactured landscape exists in Cape Town, and is a significant feature of our city. Cape Town's reclamation of the foreshore to create the Duncan dock harbour that we have today was one of the greatest engineering feats of its time. Land reclamation has allowed us to stretch the habitable surface of our earth beyond its natural shores, in essence, the ultimate manufactured landscape (Manaugh, 2009). Just to the west of Cape Town's Foreshore lies the area of Granger Bay where land was reclaimed from the sea in the 1970's. The area was created privately by a few individuals who reclaimed the land using all the old buildings of Cape Town such as the old Alhambra theatre in order to build the breakwater; "They begged borrowed and stole and succeeded to build a small harbour" (The Oceana Power Boat Club, n.d.) giving us the manufactured landscape and small boat slipway that is there today.

The site of Granger Bay in Cape Town is an exemplar condition of the manufactured landscape. Man's desire to stretch the environment and create more land led to the artificial ground that granger bay is today. The typology of the manufactured landscape is a condition of our time where nature is entirely fashioned by man; a domesticated geography. Man has always taken from the earth in order to survive yet the scale of this has now reached epic proportions.

Through the phenomenological understandings of place our readings need to shift and expand to encompass these new territories and typologies of the manufactured. What has shifted is the construct of 'place' and that the phenomena that make up these landscapes aren't so clear cut and easily defined. The character of the manufactured differs from the traditional concept of character where the man-made is now not necessarily in harmony with the natural. The character is often the horror and beauty of man's creations of inadvertently sublime landscapes.

In order to illustrate and understand the typology of the manufactured landscape and how to incorporate these new territories into our lives and cities a hypothetical building project will be developed. Fundamental to this project will be an understanding of the chosen site – Granger bay and how this site is viewed, experienced and used by people who frequent it before any hypothetical intervention is proposed.

In light of the research that will be undertaken to gain this understanding of the site, informal interviews will be conducted with various users of the site such as Oceana power boat club members. These interviews will be informal conversations and not according to an interview questionnaire. Participation in these informal conversations will be voluntary and verbal consent from all subjects will be obtained before any interview is carried out. Interview questions will be ethically considered and respectful and will not affect or harm anyone. Participants will not be named in the research report but their information will be purely used to create a background understanding of the site.

Works Cited

Cosgrove, D., 1984. *Social formation and symbolic landscape*. Wisconsin : University of Wisconsin Press.

Manauagh, G., 2009. *The BLDG BLOG Book*. San Francisco: Chronicle Books LLC.

Pauli, L., 2003. *Manufactured Landscapes: The Photographs of Edward Burtinsky*. Toronto: National Gallery of Canada.

The Oceana Power Boat Club, n.d. *The History of the Oceana Power Boat Club*. [Online]
Available at: <http://opbc.co.za/about-us.html>
[Accessed 9 April 2014].

ADDENDUM 2: To be completed if you answered YES to Question 2:

It is assumed that you have read the UCT Code for Research Involving Human Subjects (available at <http://web.uct.ac.za/depts/educate/download/uctcodeforresearchinvolvinghumansubjects.pdf>) in order to be able to answer the questions in this addendum.

2.1 Does the research discriminate against participation by individuals, or differentiate between participants, on the grounds of gender, race or ethnic group, age range, religion, income, handicap, illness or any similar classification?	YES	<input checked="" type="radio"/> NO
2.2 Does the research require the participation of socially or physically vulnerable people (children, aged, disabled, etc) or legally restricted groups?	YES	<input checked="" type="radio"/> NO
2.3 Will you not be able to secure the informed consent of all participants in the research? (In the case of children, will you not be able to obtain the consent of their guardians or parents?)	YES	<input checked="" type="radio"/> NO
2.4 Will any confidential data be collected or will identifiable records of individuals be kept?	YES	<input checked="" type="radio"/> NO
2.5 In reporting on this research is there any possibility that you will not be able to keep the identities of the individuals involved anonymous?	YES	<input checked="" type="radio"/> NO
2.6 Are there any foreseeable risks of physical, psychological or social harm to participants that might occur in the course of the research?	YES	<input checked="" type="radio"/> NO
2.7 Does the research include making payments or giving gifts to any participants?	YES	<input checked="" type="radio"/> NO

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

ADDENDUM 3: To be completed if you answered YES to Question 3:

3.1 Is the community expected to make decisions for, during or based on the research?	YES	NO
3.2 At the end of the research will any economic or social process be terminated or left unsupported, or equipment or facilities used in the research be recovered from the participants or community?	YES	NO
3.3 Will any service be provided at a level below the generally accepted standards?	YES	NO

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

ADDENDUM 4: To be completed if you answered YES to Question 4

4.1 Is there any existing or potential conflict of interest between a research sponsor, academic supervisor, other researchers or participants?	YES	NO
4.2 Will information that reveals the identity of participants be supplied to a research sponsor, other than with the permission of the individuals?	YES	NO
4.3 Does the proposed research potentially conflict with the research of any other individual or group within the University?	YES	NO

If you have answered YES to any of these questions, please describe below how you plan to address these issues: